Avolites Rolacue
Pearl 2000
Operators Manual

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*Before contacting Avolites for service enquiry please ensure that you have the product serial number and the Software version. The serial number can be found on the back of the desk and the software version found by turning the key to **SYSTEM** and pressing button **B** [SOFTWARE I.D.]. The software version is then displayed on the prompt line of the LCD Screen.

The latest version of this manual (in Microsoft Word 97) and Pearl Software can be downloaded by modem from the Internet.

The small print :

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1. Read Me!!

1.1 How to use this manual

The manual is designed to achieve two objectives; firstly to get the new user of the Pearl 2000 up and running very quickly, and secondly to provide a fast reference book for the more experienced operator. Pearl 2000 represents changes in both hardware and software from other preceding Pearl models, and a seasoned user of older models may want to skip straight to *Appendix 1. Differences between Pearl 2000 and previous versions* to acquaint themselves with the changes that they will encounter.

If you are using a Pearl for the first time and are keen to get going, save yourself the embarrassment of blowing the board up by reading section 1.2 of this chapter. Then go straight to either Chapter 2 *Getting started with Conventional lights* if you have only simple Dimmer-based lamps, or Chapter 3 *Getting started with Intelligent Fixtures* if you have other DMX Fixtures, or a combination of the two. These will tell you how to patch and control Dimmer Channels and Intelligent Fixtures, and build a simple Memory and Chase. In some cases, the first three chapters of this manual will be practically everything you ever need to read.

The other chapters are designed to be completely self-contained for dipping in to or reading as a whole. The idea is that if you read the chapter on Chases, for example, this should tell you everything in the world that there is to know about a Chase, starting with the simple stuff and leading you on through the more complicated aspects. This means there is necessarily some material repeated from the 'get you going' chapters, so that the later sections remain self contained.

Where appropriate there is a **help and hints** problem solving section at the end of each chapter too.

Terms are defined in the **glossary**

1.2 Am I using a Pearl 2000?

New Pearl 2000's have a 'Pearl 2000' legend on the front panel, but to establish if an older desk has been upgraded, you will need to check with your supplier to find out if the hardware has been changed to allow a VG monitor to be driven and facilitate the extra DMX outputs. You will also need to check the software version number to see if the software has been updated. (See 14.7.1 *Finding your Software Version number*). It is possible that the software has been upgraded without the hardware modifications, which makes no difference to the operation, except that you cannot run a monitor, you will not have all four DMX 512 outputs and certain labels on the buttons will be missing or wrong. You will find all these changes summarised in *Appendix 1. Differences between Pearl 2000 and previous versions.*

New Pearl 2000's are now shipped with VGA output as standard, and although Pearl 2000 software will run without one, there are some new functions for which the VDU is required.

1.3 Turning on

1.3.1 The important stuff

⇒ **IF YOU DO NOT READ ANYTHING ELSE PLEASE READ THIS SECTION.**

(Please see *Appendix 2. Diagram of the Pearl*.)

Before powering up the console ensure the **mains voltage selector** is set to the correct voltage for your area.

Failure to do this WILL cause severe damage, probably destroying the power supply.

The voltage selector is below the power socket. The switch has two positions, 120V and 230V.

You should connect the **VGA Screen** to the **VDU socket** before turning on. There is a power outlet over the power socket.

If you intend to use a **Graphics Tablet** in this session, you should also connect this up now to the **Serial port** on the back of the desk and switch it on (blue POWER switch in depressed position). As it receives its power from the desk it will not activate until the desk is on, but this helps it to boot up correctly.

Having checked the mains voltage is correctly selected, turn the console on using the **On switch** located near the power socket.

The console will come to life.

1.3.2 Seeing the Screen

You may need to adjust the **LCD Contrast** or the **LCD Brightness** controls in order to view information on the Screen. It is best to turn the **Brightness** control to full and turn the **Contrast** control from minimum upwards to achieve the best viewing angle for you. The brightness and contrast knobs can be found on the end of the lower bank of Preset Faders.

1.3.3 System software

The desk should be preloaded with a version of Pearl 2000. **Software updates** are released from time to time. These can be downloaded from the Avolites **Website** at Avolites (address http://www.avolites.com), together with the relevant manuals. This manual refers to Software version Pearl 2000 or later.

Our Software is constantly being updated to provide new features and functions. We test software as far as is practical before releasing it, but bugs do occasionally get out. (If you think you have found a bug, don't get mad, get on the phone!). Most bugs are of an irritating rather than a catastrophic nature.

1.3.4 Making backups

Your programming will usually be preserved in the desk and you should find your show intact from one day to the next. However, when the desk is performing particular recording functions, there is moment while data is being recorded and the files are open, when your show is vulnerable.

A major glitch in the mains supply could cause the desk to lock up, which could corrupt your programming if it occurred at this time. This happens extremely rarely, but always at the worst possible time!

In every case **make regular disk backups**. (See Section 14.1.2 *Saving your show to disk*).

The less time you have for programming the more important it is to make backups.

Happy programming from everyone at Avolites.

1.4 Overview of the desk

1.4.1 The Back Panel

There are a number of different sockets and outputs on the rear of the desk.

On the far left is the **Power Socket** where you will insert the mains lead for the desk. Above this is the **Power Outlet** for powering the **VGA Screen**, and the **Voltage Selector Switch,** which enables the desk to run on either 110v or 240v. See the section above, 1.3.1 *The important stuff* for further details.

Next to this is the **Air Intake** for the desk. It is important that this is never obstructed. Adjacent to this is the **Mains Switch**.

The **DMX Outputs** are a pair of DMX 512 sockets configured to control up to four DMX lines of 512 channels each.

If you are using a new Pearl 2000, which will have 'Pearl 2000' etched into the front panel, you can control four DMX 512 channels. In order to access channels 3 and 4, a splitter is required as the system utilises the two spare lines of a normal DMX cable. If you do not have the splitter, channels 1 and 2 only will be available in the normal way.

The outputs are wired as follows :

> DMX output 1 : socket 1, pins 2 & 3 (normal DMX pin configuration)
>
> DMX output 2 : socket 2, pins 2 & 3 (normal DMX pin configuration)
>
> DMX output 3 : socket 1, pins 4 & 5
>
> DMX output 4 : socket 2, pins 4 & 5

The splitter consists of a 'Y' split which runs pins 2 & 3 straight through onto pins 2 & 3 of one leg, and puts pins 4 & 5 onto pins 2 & 3 of the other leg to allow access to the extra channels. Splitters can easily be made or are available from Avolites Limited.

If you have previous model of the Pearl, it will only be able to provide one or two DMX 512 channels, depending on when it was bought and whether it has since been modified. An upgrade kit is available to allow original Pearls to access two DMX 512 channels. You will need to consult your supplier to find out if this upgrade has been performed on your particular desk. All Pearls have two DMX sockets, so this is no indicator of how many channels they are internally configured to drive.

The Software does not know how many DMX Lines the desk can drive, so check before you start to patch onto lines B – D.

The **Serial Port** allows the desk to be connected to either the **Graphics Tablet** or the **Stage Remote**.

The **MIDI In** and **MIDI Out** sockets allow the desk to be linked to a suitable MIDI device for external control of the desk.

The **RESET** button is for a soft reset of the desk. In the unlikely event that your desk has crashed, pressing this button should bring it back to life. This does **not** clear the desk, and should not be confused with a **WIPEALL**. See section 1.7 *Clearing the Desk with a WIPEALL*.

The **DMX In** socket is for future use and is not implemented at present.

The **Sound To Light** socket enables you to plug a microphone or other line level signal into the desk for Sound To Light operation.

Finally the **VDU** socket is where you plug in your external screen.

1.4.2 The Preset Area

This is the upper half of the desk, and includes the **LCD Brightness** and **LCD Contrast** controls (see Section 1.3.2 *Seeing the Screen),* the **Sound to Light** control (Section 9.11 *Sound to Light*) and the **Key.** The latter determines whether the desk is set to **System, Program** or **Run**. The different positions determine which functions of the desk are available to the user, and the Key is removable to allow the desk to be locked.

There is a desklamp socket and a fairly self-evident three mode switch for it.

The Pearl consists of 2 banks of **Preset Faders,** which can be used for up to controlling sixty individual Channels in **Single Preset** or **Wide mode** or up to thirty individual Channels in **Two Preset mode**.

The level to which these Preset Faders can raise a channel is determined **by Master Fader A** in Single Preset mode and **Master Faders A and B** in Two Preset mode. Master Fader A sets the maximum level for the bottom row of Presets and Master Fader B sets it for the top row.

There are thirty **Preset SWOP** and **Preset ADD** buttons. You may know these as **Flash** buttons.

In Two Preset Mode, there is obviously a **SWOP** and an **ADD** button for each Channel. In Wide mode these are associated with Channels 1 to 30.

The **Preset SWOP** function solos a Preset Channel, killing all other Playback or Preset Channels.
The **Preset ADD** buttons add the Channel to the output of the desk.

In Normal Run Mode the level to which these buttons output is controlled by the **Swop Master Fader** and the **Add Master Fader**

1.4.3 The Playback Area

Memories and Chases are recalled from fifteen **Playbacks** located under the **Roller.**

Each **Roller Facet** on the Roller is lettered **A** to **J** and there are three **Roller Pages** available allowing the Roller to be filled with three separate banks of data per Roller Facet. There are three **Roller Page buttons** located to the left of the Roller.

The Pearl has a maximum of 450 different Chases and Memories. Each Chase can contain any number of steps, subject to the availability of storage memory within the desk.

There are **Playback SWOP** and **Playback ADD** buttons associated with each of the Playback Faders. These operate in a similar manner to the Preset SWOP and Preset ADD buttons, and allow a Playback Channel to be recalled either solo, (killing all other Playback or Preset Channels), using the Playback SWOP button, or added to the desk output using the Playback ADD button.

In Normal Run Mode the level to which these buttons output is controlled by the **SWOP Master Fader** and the **ADD Master Fader.**

The **Grand Master** Fader always determines the output of the whole of the Playback and Preset Areas proportional to its level.

1.4.4 The Control Area

This area is used to control all the programming features of the desk.

The Pearl has two **Wheels** marked **A** and **B**. These control various desk functions described later.

There is a vertical row of twelve blue buttons called **Program Selects** which are used for programming and also allow access to the most commonly used functions.

Eleven grey **Attribute Bank** buttons usually determine which Attribute of a moving light is currently under control. They allow access to or indicate the use of the relevant DMX Channels required to control the different functions of sophisticated Fixtures. Attribute Button 11 is a **Shift** key which allows access to another page of Attribute Banks. There are no Fixtures at present which use Attribute Banks 11 – 20, but there may be in future. The red Attribute Button 12 allows an intensity channel to have its overall output limited.

The **Chase CONNECT**, **STOP** and **GO** buttons allow chases to be played and edited.

Directly to the right of these is a block of twelve buttons.

The **Sequence Control** section, which is the bottom row of buttons, gives Run time control of Chases and allows programming and editing of Chases. The button which used to be called **EDIT** is now called **REVIEW**, and has a different function.

The row of four keys above this are buttons which may be blank if the hardware upgrades on the desk have not been done. These are for enhanced editing of Chases, and should be labelled left to right as follows : **LIVE TIME, REC. STEP, NEXT TIME** and **SNAP BACK**.

The top row of buttons are for changing **Pages of Fixtures.** Again, on an unmodified Pearl, the legend may be absent. These are used to effectively create four pages of **Preset Faders** so that you can patch and control more Fixtures and Dimmers than there are **Preset Faders**. This is an enhanced function that replaces the old method of patching extra dimmers onto unused Attribute Banks.

We have used the 'Hotel Room' theory of numbering our Preset Faders ie. On **Page 0** you find **Preset Faders 1 – 60**, on **Page 1** you find Preset **Faders 100 – 160** and so on.

⇒ *For the sake of simplicity, where I have referred to **Preset Faders** 1 – 30 or 31 – 60, the information can generally be taken to apply also to **Preset Faders** 101 – 130 / 131 – 160, 201 – 230 / 231 – 260 and 301 – 330 / 331 – 360. The only difference is the current Page of Fixtures selected.*

There is a **Display**, alongside which are the **Softbuttons** labelled **A** to **H**. These buttons refer to options presented along the right hand side of the LCD display. These will differ according to which Screen is currently being presented.

To the right of this is the **Keypad**. This features a **Numeric Keypad,** the **Keypad Function Keys**, the new **Programming** keys at the top of the Keypad, the four **Cursor Keys** at the bottom and the new **AVO** key.

1.4.5 The Screen buttons

The Numeric Keypad and Keypad Function Keys allow the programmer to enter data into the desk. Some buttons have changed in this section from previous versions of the Pearl. The top row of grey buttons should be labelled as follows from left to right : **CHANNEL**, **FOCUS**, **INCLUDE** and **NEXT SCREEN**. The button to the right of the number 3 on the keypad, which was previously unassigned, is now the **AVO** button.

The **CHANNEL** button allows different ways of selecting Fixtures, and is a new feature. See section 9.6 *The CHANNEL button. **Note that the only way to exit this menu is to press the Channel button again.***

The **FOCUS** button allows numeric access to Preset Focus functions, and is also a new feature. See Section 8.5 *Programming a Preset Focus.*

The **INCLUDE** button is an old programming feature which has been moved from its previous location in the Program Select bank. See Section 9.7 *The INCLUDE button.*

The **NEXT SCREEN** button enables the viewing of the 12 different Screens of information. Pressing it will take you on to the next Screen, or back to Screen 1 when you reach Screen 12. This replaces the old View Cursors.

The **AVO** button is currently used as a Shift key to enable the Selection of Dimmer Channels patched onto the upper bank of **Preset Faders**.

The **Cursor Keys** allow navigation around the Screens themselves. Typically the **Up and Down Arrows** move the cursor up and down items on a menu, and the **Left and Right Arrows** allow you to toggle between different options of a menu item.

EXIT allows you to quit a Screen and return to the next menu up if applicable. If you are stuck in a Screen, press **EXIT**.

1.5 The Key Switch Positions

1.5.1 System mode

Turning the Key to **System** mode allows access to System Software, various diagnostic functions, the Script Files and the **WIPEALL** function (see Section 1.7.1 *To do a WIPEALL*). If you are upgrading your System Software or emptying a desk prior to programming a new show, you will use this section. It is not recommended to program in this mode, so do what you gotta do and get out!

1.5.2 Program mode

In **Program** mode, the System Software is protected, and it is not possible to completely wipe the desk. All the Programming and Editing functions are enabled, allowing you to build or change any aspect of a show.

1.5.3 Run mode

This is discussed further in Chapter 13 *Running your show*, but generally this disables any possibility of permanent change to the programmed show while allowing full access to the Playback functions.

On the Pearl, the **Key** can be removed to lock the desk in any of the above modes. It can be useful to lock the desk into Run mode to prevent anyone messing about with the show.

1.6 The Programmer

This name is given to an internal part of the desk that contains information prior to recording. It **always** outputs at full, and even overrides the **Grand Master**.

Any information put in the Programmer always takes highest priority. As soon as you change any Attribute of any Fixture, the DMX channel controlling the Attribute (and thus the Attribute itself) will be held in the Programmer and dissociated from any other part of the desk trying to control it .

In practice, what this means is that as soon as you manually change, for example the colour of an Intellabeam, the only way that you can change the colour again, until you release the Fixture, is by selecting another colour manually for it. If you have a colour Chase running through all your Intellabeams on a Playback Fader, this one will not run the Chase until the Programmer is cleared. Once released from the Programmer, it will happily join in again with its friends!

Other Fixtures not in the Programmer will not be affected.

Other Attributes of the Fixture not placed in the Programmer (eg. Pan and Tilt) will not be affected.

The lamp is released by pressing the **CLEAR** button, which empties the Programmer.

There may be several Channels in the Programmer at one time, and **this may not be obvious**.

If you change an Attribute of a Fixture, and deselect it to edit another Fixture, the first channel is still in the Programmer even though you are now using a different Instrument. You may even be in a different Attribute Bank. It will store in any Memories or Chase Steps you may make until you press **CLEAR**.

⇒ *To avoid storing unwanted information when programming press the* **CLEAR** *button before starting to build any Memories or Chases.*

If a channel does not change in level when a Playback Fader is moved, it is probably under the control of the Programmer. Release it by pressing CLEAR.

See also Section 4.2 *How HTP and LTP Channels behave in the Programmer.*

1.6.1 Placing Channels in the Programmer

Channels are placed in the Programmer **when ever they are edited by any means** but **not** as a result of recalling Memories or Chases.

Recalling a Memory or a Chase on a Playback Fader does **not** put the Channels in the Programmer.

⇒ *This means that you cannot record new Memories or Chases using looks straight from a Playback Fader (However see Section 9.7* The INCLUDE button)*.*

1.6.2 Clearing Channels from the Programmer

Channels can be removed from the Programmer by :

Either

- Pressing **CLEAR**

or

- Using the **OFF** Function. (See Section 4.8 *The OFF button*).

1.7 Clearing the Desk with a WIPEALL

A **WIPEALL** empties the Pearl of all previous programming, including the patch, but leaves the System Software intact.

⇒ *A WIPEALL is recommended before starting to program any new show.*

Make sure any important data is saved to disk before doing a WIPEALL or it will be lost forever!! (See Section 14.1.2 *Saving your show to disk.*)

1.7.1 To do a WIPEALL

- Turn the **Key** to **System.** *Puts you in SYSTEM MODE menu.*

- Press **Softbutton A** [SERVICE]. *Puts you in the SERVICE menu.*

- Press **Softbutton F** [WIPEALL]. *Asks you to press Softbutton F to confirm WIPEALL or press EXIT to abort..*

- Press **Softbutton F** again. *Console energises and restores you to SYSTEM MODE menu.*

- Turn **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Start programming!!

1.8 Help and Hints

Problem : *I didn't read the manual properly and I plugged the desk in with the wrong voltage selected. I think I've blown up my Power Supply. HELP!*
Solution : If you can find an Electronics shop like Tandy in the UK or Radio Shack in the US, they should be able to sell you the Power Supply called a Baby AT for an ordinary PC. If you cannot get this, another PC power supply may well do the job.
Although these may not actually fit inside the Pearl properly, they should have the correct connectors fitted to run the console until you can bring yourself to admit what you have done to Avolites and get a replacement!

Problem : *I can't seem to get a DMX output from the Pearl.*
Solution 1: Check that you have your DMX cable plugged into the correct socket. Also check that you have not tried to patch Fixtures onto a DMX 512 output that the desk cannot drive.
Solution 2: Check that you have not reduced the number of DMX Channels that the desk is outputting. (See section 5.21.2 *Reducing the number of DMX Channels*).

2. Getting started with Conventional lights

2.1 Getting ready

Congratulations. Presumably you have managed to power up correctly and avoided blowing up the desk. If you have not yet powered up, go back to Section 1.3.1 *The important stuff* and follow the instructions then come back and join us.

If you are programming a new show from the beginning, you should clear all the old junk out of the desk that the previous user left behind. To clear the desk, do a **WIPEALL** See the previous Section 1.7.1 *To do a WIPEALL.*

2.2 Patching some Conventional lights

Before you can control a Fixture or a Dimmer you must **Patch** it. The Patch function connects a desk Channel to an actual output Channel. We have used the 'Hotel Room' theory of numbering our Preset Faders
ie. On **Page 0** you find **Preset Faders 1 – 60**, on **Page 1** you find Preset **Faders 100 – 160** and so on.

2.2.1 Quickly creating a 1 to 1 Dimmer patch

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

    The VGA Screen will automatically change to show which DMX addresses are in use.

- Select the **Page of Fixtures** that you want to patch onto.

    Selecting page 0 will allow you to patch Preset Faders 001 – 060.

    Selecting page 1 will allow you to patch Preset Faders 101 – 160

    Selecting page 2 will allow you to patch Preset Faders 201 – 260.

    Selecting page 3 will allow you to patch Preset Faders 301 – 360

- Press **Softbutton A** [DIMMER]. *Screen asks you to enter a DMX number and patch it to an ADD or SWOP button.*

- Press and hold down the grey **Preset ADD** button number 1*. The Preset A and B LED's will flash once.*

- Whilst still holding this, press and release the grey **Preset ADD** button number 30*. The Preset A and B LED's will turn on whilst the desk is computing the patch and will then go out.*

- Select another **Page of Fixtures** and repeat the process if required. *You can patch a maximum of 120 Dimmer Presets in this way.*

- Press **EXIT** or the **PATCH** button to leave the Patch functions.

This gives you the maximum number of Channels accessible in **Two Preset Mode**. That means that both sets of Preset Faders control each Dimmer Channel. You have patched them to DMX output 1, so you need to ensure that your DMX cable is in the DMX socket 1 on the back of the desk.

To run in **Two Preset** Mode, you need to set User Setting 4 to 2 PRESET. (See section 12.4 *Setting 4. Run Modes*).

If you want to run the desk in **Wide** mode, repeating the above directions on the SWOP buttons will 1 to 1 patch Channels 31 - 60 onto the top set of Preset Faders, leaving the original 30 Channels patched on the bottom Preset Faders. You can repeat this on each of the four **Pages of Fixtures**, allowing you to patch up to 240 Dimmer Presets in this way.

2.2.2 Patching individual Dimmers

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue **Program Select** bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

  If you have the VGA option the VGA Screen will automatically change to show which DMX addresses are in use.

- Select the **Page of Fixtures** that you want to patch onto.

  Selecting page 0 will allow you to patch Preset Faders 001 – 060.

  Selecting page 1 will allow you to patch Preset Faders 101 – 160

  Selecting page 2 will allow you to patch Preset Faders 201 – 260.

  Selecting page 3 will allow you to patch Preset Faders 301 – 360

- Press **Softbutton A** [DIMMER]. *Screen asks you to enter a DMX number and patch it to an ADD or SWOP button.*

- Using the **Numeric Keypad** type the number of the **lowest DMX channel** you are going to use. *The Screen suggests the lowest DMX channel number available (1), but you can type over this.*

- Press a grey **Preset ADD** button to patch a DMX address onto any of the Preset Faders 1 to 30 or a blue **Preset SWOP** button to patch a DMX address onto any of the Preset Faders 31 to 60. *The DMX address automatically increments each time you patch a channel. This allows you to easily patch sequential addresses. You can type over the incremented values if you need to.*

⇒ *You can patch any number of Dimmer DMX Channels onto any Preset Fader.*

- Continue patching in this way until you have patched all the Dimmer Channels that you want to patch on this Page of Fixtures. *If you are only patching a sequential series of DMX Channels, this should simply involve pressing the **ADD** or **SWOP** buttons of the destination Preset Faders.*

- Select another **Page of Fixtures** and repeat the process if required. *You can patch a maximum of 240 Dimmer Presets in this way.*

- Press the **EXIT** button or **Softbutton F** [QUIT THIS MENU] to leave the patch. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press **EXIT** or the **PATCH** button again. *Puts you back in LIVE PROGRAM MODE menu.*

⇒ *Do this as soon as you have finished patching since it is easy to leave the desk in Patch and then to inadvertently patch a Dimmer or Fixture when meaning to recall a Preset Focus! (See Chapter Eight Preset Focuses).*

⇒ *If you have anything more complicated to patch or you have made a mistake, go to Chapter 5, Patching for further help.*

The Preset Fader on which you have patched a Dimmer Channel is called its **Handle.**

Once patched Handles are immediately active and so can be used to bring up Channels straight away to check your patch.

2.3 Controlling Dimmer Channels

2.3.1 Raising a Preset Fader

- Make sure all the **Master Faders** are at **full.**

- Select the appropriate **Page of Fixtures**.

- Raise and lower the **Preset Faders**.

The channel will output to the level of the **Preset Fader**.

2.3.2 Controlling Dimmers on Different Pages

You can use Fixtures from any pages to build your Memories and Chases. If the channel you want to control is on the same Preset Fader but a different page to another channel you are using, you will need to :

- Select the **Page of Fixtures** of the first channel you want to use.

- Raise the **Preset Fader** of the first channel. *The VDU will display the output value.*

- Select the **Page of Fixtures** of the second channel.

- Bring the **Preset Fader** down to zero, then back up to the desired value of the second channel. *The VDU will display the output value of the first channel unchanged, and also the value of a new channel.*

⇒ *To change the value of a Channel on a different Page of Fixtures, it is necessary to match the Preset Fader to the original value of the channel by raising or lowering the Preset Fader. The VDU display shows the value of the Channel and the Preset Fader separately until the values are matched and the Preset Fader takes control.*

2.4 Programming a first Memory

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to empty the Programmer. (See Section 1.6 *The Programmer* for more details.)

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Create the scene you wish to record by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders.** See section 2.3.2 *Controlling Dimmers on Different Pages* if required.

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller.

- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light.*

- Press the **SWOP** button of the Playback Channel you want to record the Memory onto. *The Memory is now recorded. The LED on the Playback Channel will light to indicate it has something recorded on it and the LED on the MEMORY button goes out.*
You may wish to bring up the Playback Fader you have just programmed (If it was up you should take it down then put it up) and take down any preset faders that are up.

- Press **CLEAR** to release Channels from the Programmer.

$\Rightarrow$ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

That's it. You have just programmed a basic Memory. There are many other things you can do with a Memory, all of which are detailed in Chapter 6 *Programming Memories.*

Let's try programming a simple Chase.

2.5 Programming a first Chase

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to empty the Programmer. (See Section 1.6 *The Programmer* for more details.)

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller. *There is no need to press ENTER.*

- Press the blue **CHASE** button on the Program Select bank. *Its LED will light up and you can see which Playback Faders are free because their SWOP button LED's will flash.*

- Press the flashing **SWOP** button of the Playback Channel you want to record the Chase onto. *All the other Playback Fader LED's will stop flashing.*

- Create the scene you wish to record by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders** to create the look you wish to use for **Step 1** of your Chase. See section 2.3.2 *Controlling Dimmers on Different Pages* if required.

- Press the flashing **SWOP** button of the Playback Channel to record the Step. *The prompt line on the Screen tells you your next step number.*

- Repeat the previous two directions for as many Steps as you wish to record. *There is no limit to the number of Chase Steps provided that there is enough storage memory left in the desk.*

- Press the **CHASE** button again. *The Chase is now recorded. The LED on the Playback Channel will light to indicate it has something recorded on it and the LED on the CHASE button goes out.*

- Press **CLEAR** to release Channels from the Programmer.

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

2.5.1 Connecting a Chase

You can alter aspects of the Chase by **CONNECTING** it.

- Turn the **Roller** to select the **Roller Facet** of the Chase you wish to Connect.

- Raise the Chase **Playback Fader** above the **Trigger Point**. *This is the point at which the Chase will start to run*

- Press the blue **CONNECT** button in the Sequence Control area. *The LED's of all the Chases on this page of the Roller will flash.*

- Press the **SWOP** button of the Chase you want to Connect. *The Chase LED's stop flashing.*

We say the Chase is now **CONNECTED.**

2.5.2 Adjusting the Speed and Crossfade of your Chase

Connect the Chase. You can now control the **Speed** and **Crossfade** times of your Chase using the two **Wheels**.

2.5.3 Stopping and Starting your Chase

The **STOP** and **GO** buttons stop and start a **Connected** Chase.

The **STOP** button steps through a Stopped Chase.

⇒ *Note that when stepping through a Chase in this fashion, the steps will be executed without any timing information that may be programmed in them.*

2.5.4 Changing the direction of a Chase

You can change the direction of a **Connected** Chase by using the three **Arrow Keys** at the bottom of the **Sequence Control** area.

The **Right** and **Left Arrows** send the Chase **Forwards** and **Backwards** respectively, and the **Double-Ended Arrow** makes the Chase **Bounce** backwards and forwards, with the Right or Left Arrow indicating which direction it is currently going in.

A number of **Chase Parameters** are definable for each Chase. Details of these can be found in section 7.27 *Setting the Chase Parameters.*

3. Getting started with Intelligent Fixtures

3.1 Getting ready

Congratulations. Presumably you have managed to power up correctly and avoided blowing up the desk. If you have not yet powered up, go back to Section 1.3.1 *The important stuff* and follow the instructions then come back and join us.

If you are programming a new show from the beginning, you should to clear all the old junk out of the desk that the previous user left behind. To clear the desk, do a **WIPEALL.** See 1.7.1 *To do a WIPEALL.*

3.2 Using Intelligent Fixtures

Pearl 2000 is designed to control Intelligent Fixtures and has many powerful features to allow fast programming combined with hands on control. This starts with the Patch system, which uses **Personality Files** to define how Intelligent Fixtures will be controlled by the console. These are stored on the 3.5 inch **Personality Disks** supplied with your desk.

Each different type of Fixture has a different Personality File built for it. Updates can be supplied from Avolites Ltd. or picked up from the Website (www.avolites.com), or they can easily be customised if you have access to a PC. See the Personality Disk Programmer's Manual for more details.

3.3 Patching Intelligent Fixtures

In order to control an Intelligent Fixture, you first need to patch it. We have used the 'Hotel Room' theory of numbering our Preset Faders
ie. On **Page 0** you find **Preset Faders 1 – 60**, on **Page 1** you find Preset **Faders 100 – 160** and so on.

When patching Intelligent Fixtures using a Pearl, you can either enter the DMX addresses for Fixtures that have already been addressed, or let the desk generate an address for each Instrument, write it down and then go around and address your rig.

Either way, it is useful to write the addresses down.

The desk will normally create addresses from DMX Channel 1 upwards.

Each of the red **Preset Faders** and the associated **SWOP** and **ADD** buttons can used to control an Intelligent Fixture. It is called its **Handle.** There are 30 handles on each of the four **Pages of Fixtures**, so you can control a maximum of 120 Intelligent Fixtures on a Pearl 2000. It is also possible to control up to 120 Dimmer Presets as well on the blue Preset Faders, provided you have sufficient DMX channels. See section 5.20 *How many Fixtures or Dimmer Channels can I control?*

- Turn the key to **Program**. *Puts you in LIVE PROGRAM MODE menu.*

- Put the **Personality Disk** in the disk drive.

- Press the blue **PATCH** button on the Program Select bank**.** *You are asked to choose DIMMER or DEVICE.*

If you have the VGA Screen option this will now display which DMX addresses are in use, and which Fixture type is using them.

- Press **Softbutton B** [CHOOSE A FIXTURE]. *The disk is now read and a list of available Personalities is presented on **Softbuttons A** to **E**. More Fixtures can be listed by pressing **Softbutton F** [MORE]. **Softbutton G** [GO BACK] takes you back one page of Fixtures.*

- Select the Instrument you wish to patch from the list on the **Softbuttons**.

- You will now be presented with a menu asking if you want to automatically create **Preset Focuses**. Select **Yes** or **No** using the **Softbuttons.**

  Automatically creating Preset Focuses allows you to quickly create a show when programming time is limited. In general the pre-programmed Preset Focuses are arranged as 10 colours, 10 gobos and 10 positions on Preset Focus buttons 1 to 30.

  If you wish to totally customise how the Preset Focus buttons are used selecting **NO** will probably be best. **You cannot load automatically generated Preset Focuses except when initially patching**.

  See Chapter 8 *Preset Focuses* for more details.

- The disk is now read again and the Fixture is ready to patch. *Screen shows how the different **Attributes** of the Fixture are presented, and displays a DMX address at the top.*

  If you do not have the magnetic Attribute Bank label, it is worth copying this information onto the Attribute Bank select buttons. (Use tape to prevent damage.)

  You can use the address suggested by the desk or you can enter a new address on the **Numeric Keypad**. (The advantage of using the provided address is that there is no risk of conflict with previously patched Fixtures or Dimmers.)

- Select the **Page of Fixtures** that you want to patch onto.

  Selecting page 0 will allow you to patch Handles 001 – 030.

  Selecting page 1 will allow you to patch Handles 101 – 130

  Selecting page 2 will allow you to patch Handles 201 – 230.

  Selecting page 3 will allow you to patch Handles 301 – 330

- Press a **Preset Fader ADD** button to patch the Fixture. *That Fixture is now patched onto this Handle. The Screen will now show the next free DMX address. Again you can use this or enter another address and patch more Fixtures by pressing **Preset Fader ADD** buttons.*

- If desired, you can select another **Page of Fixtures** and continue patching in the same way. You can use Preset Faders on the new page that you have used on a previous **Page of Fixtures**.

- When you have finished patching all your Fixtures of that type, you can either press **Softbutton A** [SELECT ANOTHER DEVICE], to patch more devices of a different kind, or **Softbutton F** [QUIT] or **EXIT.**

⇒ *Exit as soon as you have finished patching since it is easy to leave the desk in patch and then to inadvertently patch a Dimmer or Fixture when meaning to recall a Preset Focus!*

⇒ *Don't try to patch Intelligent Fixtures onto **Preset Fader SWOP buttons**. These are only available for patching Dimmer Channels onto. (See Chapter 5 Patching.)*

⇒ *If you have anything more to patch or you have made a mistake, go to Chapter 5 Patching for further help.*

3.4 Controlling Intelligent Fixtures

Now you have patched your Intelligent Fixtures, you will want to be able to control them. The various **Attributes** of each Fixture are accessed via the **Attribute Bank.** You can then use the **Wheels** to set the level of an Attribute. Intensities can be controlled either using the **Wheel A** in the LAMPS **Attribute Bank** or the **Preset Faders**. The Preset Faders control intensities only.

On a Pearl 2000 fully loaded with 120 Intelligent Fixtures and 120 Dimmer Presets, the Intensities of the Dimmers will all be on the blue **Preset Faders,** and the Intensities of the Intelligent Fixtures will all be on the red **Preset Faders**. Thus, an Intellabeam patched onto **Handle** 14 will have its Intensity on Preset Fader 14.

3.4.1 Controlling Intelligent Fixtures using Wheels

To do this you need to connect the **Wheels** to the desired **Handles.**

3.4.2 Selecting a Fixture

Press the **SWOP** button of the **Handle** you have patched them on to. This will Select whatever Fixture or Dimmer Channel has its intensity patched onto the red **Preset Faders** on this Page of Fixtures. The LED on the button will light up. *(If this does not happen, press **Softbutton B** [USER SETTINGS] followed by **Softbutton A** [FIXTURES OR MIMICS] then **EXIT**.)*

You have **Selected** this Fixture. You can Select further Fixtures by pressing more **SWOP** buttons.

The Fixture will now respond to the **Wheels**. You can choose an **Attribute** from the Attribute Bank and control these Channels.

3.4.3 Selecting a series of Fixtures

To select a group of adjacent Fixtures :

- Press the **Preset SWOP** button of the first Fixture you want to select and hold it down.

- Press the **Preset SWOP** button of the last Fixture you want to select.

- Release the first **Preset Swop** selected, then the second. The LED's of all the buttons between the two will light up, indicating that they are Selected.

3.4.4 Using the AVO button as a Select Shift key

You can use the **AVO** button as a shift key to Select one or more adjacent Dimmer Presets on any of the blue Preset Faders, using the **SWOP** buttons method as above.

- Hold down the AVO button while pressing the appropriate **SWOP** button. *You have Selected a Dimmer Channel patched onto the blue Preset Faders.*

You can also Select a series of adjacent Dimmer Presets using the **AVO** button and the two **SWOP** button Selection method above.

3.4.5 How the Wheels control the Attributes

The Pearl has two Wheels.

The top Attribute on the Attribute Bank is controlled by the **Right Hand Wheel** (**Wheel B**) and the bottom Attribute is controlled by the **Left Hand Wheel** (**Wheel A**).

For example, here is how an eight channel Intellabeam Moving Mirror light is controlled. I have assumed that the Fixture is Selected.

	Wheels	
Bank	'A'	'B'
1	Dimmer	-------
2	Iris	Strobe
3	Tilt	Pan
4	Colour	-------
5	-------	-------
6	Gobo	-------
7	-------	-------
8	Speed	-------

Choosing Attribute Bank 1 (LAMPS) and moving Wheel A will turn on the Dimmer Channel.

Choosing Attribute Bank 3 (PAN / TILT) and moving Wheel A will move the Tilt axis of the mirror. Wheel B will alter the Pan.

Selecting Attribute Bank 4 (COLOUR / COLOUR) and moving Wheel A will move the colour Wheel of the Fixture. Using Wheel B will not affect the Fixture as it only has one colour Wheel.

3.4.6 High resolution Pan and Tilt control of 16 – bit Fixtures

Pressing the Pan / Tilt Attribute button a second time toggles the Fine control of Pan and Tilt for Fixtures with 16 bit Pan and Tilt. The LED on the Pan / Tilt Attribute Bank flashes to show that it is operating in Fine mode. The mode will be retained when you change Attribute Banks.

3.5 Using LOCATE FIXTURE

Sometimes you want to quickly be able to find a Fixture. Some Fixtures have features that make it difficult to tell if the unit is working or not as you can't see any light coming out. This may be for any number of reasons.

eg. The shutter is in, or the Fixture is in colour black.

Locate Fixture puts the unit to Open White, no gobos or effects and with the Pan and Tilt both at 50% to help you find it.

*Locate Fixture **does not** place LTP Channels in the Programmer, you must still do this in the usual way. See Section 4.2* How HTP and LTP Channels behave in the Programmer.

To use **Locate Fixture :**

- Put the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Select** the Fixtures you wish to **Locate.** *Their LED's light up.*

- Press **Softbutton H - M.L. Menu.** *Accesses the Moving Light menu.*

- Press **Softbutton A** [LOCATE FIXTURE].

3.6 Programming a first Memory

When you are comfortable controlling Intelligent Fixtures, you are ready to build your first Memory.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to clear the Programmer. (See 1.6 *The Programmer* for more details.)

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Create the scene you wish to record by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders**, and connecting the **Wheels** to different Attributes to create LTP looks.
  Alternatively use a **Preset Focus** to create a look. See Chapter 8 *Preset Focuses.*

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller. *There is no need to press ENTER.*

- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up and you can see which Playback Faders are free because their SWOP button LED's will flash.*

- Press the **SWOP** button of the Playback Channel you want to record the Memory onto. *The Memory is now recorded. The LED on the Playback Channel will light to indicate it has something recorded on it and the LED on the MEMORY button goes out.*

- Press **CLEAR** to release Channels from the Programmer.

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

That's it. You have just programmed a basic Memory. There are many other things you can do with a Memory, all of which are detailed in Chapter 6 *Programming Memories.*

Let's try programming a simple Chase.

3.7 Programming a first Chase

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to empty the Programmer (See Section 1.5 *The Programmer* for more details).

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller. *There is no need to press ENTER.*

- Press the blue **CHASE** button on the Program Select bank. *Its LED will light up and you can see which Playback Faders are free because their SWOP button LED's will flash.*

- Press the flashing **SWOP** button of the Playback Channel you want to record the Chase onto. *All the other Playback Fader LED's will stop flashing.*

- Create the scene you wish to record as Step 1 of your Chase by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders**, and connecting the Wheels to different Attributes to create LTP looks. Alternatively use a **Preset Focus** to create a look. See Chapter 8 *Preset Focuses.*

- Press the flashing **SWOP** button of your Playback Channel to record the step. *The prompt line on the Screen tells you your next step number.*

- Repeat the previous two directions for as many steps as you wish to record. *There is no limit to the number of Chase steps provided that there is enough memory left in the desk*

- Press the **CHASE** button again. *The Chase is now recorded. The LED on the Playback SWOP button will light to indicate it has something recorded on it and the LED on the CHASE button goes out.*

- Press **CLEAR** to release Channels from the Programmer.

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

3.7.1 Connecting a Chase

You can alter aspects of the Chase by **CONNECTING** it.

- Turn the **Roller** to select the **Roller Facet** of the Chase you wish to Connect.

- Raise the Chase **Playback Fader** above the **Trigger Point**. *This is the point at which the Chase will start to run.*

- Press the blue **CONNECT** button in the Sequence Control area. *The LED's of all the Chases on this page of the Roller will flash.*

- Press the **SWOP** button of the Chase you want to Connect. *The Chase LED's stop flashing.*

We say the Chase is now **CONNECTED.**

3.7.2 Adjusting the Speed and Crossfade of your Chase

Connect the Chase. You can now control the **Speed** and **Crossfade** times of your Chase using the two **Wheels**.

3.7.3 Stopping and Starting your Chase

The **STOP** and **GO** buttons stop and start a **Connected** Chase.

The **STOP** button steps through a Stopped Chase.

⇒ *Note that when stepping through a Chase in this fashion, the steps will be executed without any timing information that may be programmed in them.*

3.7.4 Changing the direction of a Chase

You can change the direction of a **Connected** Chase by using the three **Arrow Keys** at the bottom of the **Sequence Control** area. The **Right** and **Left Arrows** send the Chase **Forwards** and **Backwards** respectively, and the **Double-Ended Arrow** makes the Chase **Bounce** backwards and forwards, with the Right or Left Arrow indicating which direction it is currently going in.

A number of the Chase Parameters are definable for each chase. Details of these can be found in section 7.27 *Setting the Chase Parameters.* Chases are discussed in more detail in Chapter 7 *Programming Chases.*

4. More about Intelligent Fixtures and Moving Lights

4.1 What are HTP and LTP Channels?

There are two basic types of Attribute - **LTP**, (Latest Takes Precedence or Last takes Precedence) and **HTP**, (Highest Takes Precedence).

These terms refer to how different Attributes of a Fixture are recalled in the Playback area in a Memory or Chase.

LTP Channels respond to and retain the last instruction they were given. *Colour* is an example of an LTP Channel. When recalled in a Memory or Chase, the Fixtures will all go to the colour stored in that cue when the Playback Fader is raised. If the Fader is then lowered, the Fixtures will stay in that colour until told to go to another one. They retain the **Latest** colour instruction.
LTP Channels are used for everything EXCEPT Dimmers.

HTP Channels respond to the highest Playback Fader containing that Fixture. *Intensity* is the only HTP Channel. If you have two Memories both containing the same Fixture, the Fixture will take its Intensity from the highest Playback Fader, regardless of the order in which the Memories were activated.

To make the Fixture go to zero intensity, **both** Memory Playback Faders must be taken to zero.

4.2 How HTP and LTP Channels behave in the Programmer

When you put **LTP Channels** into the Programmer, then CLEAR the Programmer, the Channels are dropped from the Programmer but do not change in value. Any Fixtures that you put to red, for example, will still be in red, provided that they are not changed by an active Playback Fader.

When you put **HTP Channels** (intensities) into the Programmer and raise them, then CLEAR the Programmer, provided that there are no Playback Faders active with these Fixtures in them, the Channels will go to zero.

ie. The Fixtures will go out.

4.3 How HTP and LTP Channels are recorded

The following table gives details of how different channel types are recorded.

LTP Channels will ONLY record if they are in the programmer!

> This means that you **cannot** raise a Playback Fader and directly use the LTP looks programmed onto it! All that will record is the HTP information unless you access at least one LTP Channel or the Intensity is changed.
> To get around this, however, see Section 9.7 *The INCLUDE button.*

It should also be noted that a Memory is not made active until the Playback Fader is taken down and raised again.

Channel Type	New Memory Live Program	Edited Memory Live Program	Edited or New Memory, but **Softbutton A** pressed after pressing **MEMORY**	Blind Program (See Section 9.10 *Programming in BLIND mode)*
HTP	Records as seen on stage.	Only records Channels if they are present in the Programmer.	Records output as seen on stage. (See Section 6.12 *Using the RECORD STAGE function*)	Only records Channels if they are present in the Programmer.
LTP	Records Channels present in the programmer.	See also Section 6.1 *Record by Instrument / Record by Channel*		

4.4 INSTANT and FADING Channels

Certain LTP Channels can be defined as **Instant** or **Fading**. This is initially set by the Personality File, however it can be easily changed once the Instrument is patched.

Typical Channels that can be Instant or Fading are Colour Wheel or Gobo Wheel Channels where you may prefer the Fixture always to bump to the next complete colour or gobo rather than crossfading between them.

The Channel is **Instant** if it always bumps to the next position.

The Channel is **Fading** if it always makes a smooth change in level from one state to another.

Some Channels will always be Fading; for example, Pan and Tilt will always crossfade.

⇒ *If your Channel normally has a 'Spin Wheel' option on the Channel where the whole colour or gobo Wheel can rotate at various speeds, this will function as normal whether the Channel is designated Instant or Fading.*

4.4.1 Setting an LTP Channel to be Instant or Fading

It is possible to toggle between the two on certain Channel types described above. Here's how.

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

    The VGA Screen will automatically change to show which DMX addresses are in use.

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in PATCH UTILITIES menu.*

- Press **Softbutton B** [SET/RESET INSTANT MODE].

    The VGA Screen will automatically show you all 30 Handles for the current Page of Fixtures and Attribute Bank.

- Select the **Attribute Bank** of the Attribute you wish to change. *Its LED lights up.*

   The Channels are displayed on the VGA monitor as INSTANT or FADING.

- Press a **Preset SWOP** or **ADD** buttons on the Handle of each Fixture you wish to change. *ADD buttons toggle Channels on the upper Attributes; SWOP buttons toggle Channels on the lower Attributes on each Bank. You can change Pages of Fixtures if necessary.*

- Press **EXIT** twice to leave the function. *Puts you back in LIVE PROGRAM MODE menu.*

4.5 Inverted Channels

Sometimes it may be useful to **Invert** a channel. This will mean that when the Fader is down the channel will output at full, and when the Fader is at full the channel will output 0%.

4.5.1 To Invert a channel

It is possible to toggle between Inverted and Normal Channels. Here's how.

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

   The VGA Screen will automatically change to show which DMX addresses are in use.

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in PATCH UTILITIES menu.*

- Press **Softbutton A** [INVERT].

   The VGA Screen will automatically show you all 30 Handles for the current Page of Fixtures and Attribute Bank.

- Select the **Attribute Bank** of the Attribute you wish to change. *Its LED lights up.*

   The Channels are displayed on the VGA monitor as NORMAL or INVERTED.

- Press the **Preset SWOP** or **ADD** buttons of the Handle of each Fixture you wish to change to toggle the mode. *ADD buttons toggle Channels on the upper Attributes; SWOP buttons toggle Channels on the lower Attributes on the Attribute Banks. You can change Pages of Fixtures if necessary.*

- Press **EXIT** twice to leave the function. *Puts you back in LIVE PROGRAM MODE menu.*

⇒ *Set up any Inverted Channels before you start programming otherwise your looks will not replay in the way you expect.*

4.6 To swap Pan and Tilt

Sometimes it can be convenient to be able to swap Pan with Tilt on certain Fixtures, so that the orientation of a group of moving mirrors becomes consistent.

To do this :

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

   The VGA Screen will automatically change to show which DMX addresses are in use.

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in PATCH UTILITIES menu.*

- Press **Softbutton C** [SWAP PAN AND TILT].

  The VGA Screen will automatically show you all 30 Handles for the current Page of Fixtures and Attribute Bank.

- Select the Pan /Tilt **Attribute Bank** so that you can see what you are doing. *Its LED lights up. .*

- Press the **Preset SWOP** buttons of the Handle of each Fixture you wish to change to toggle the mode. *You can change Pages of Fixtures if necessary.*

  The swapped Channels are displayed on the VGA monitor as SWAPPED.

- Press **EXIT** twice to leave the function. *Puts you back in LIVE PROGRAM MODE menu.*

⇒ *Set up any Pan and Tilt Swaps before you start programming otherwise your looks will not replay in the way you expect.*

4.7 The Moving Light Menu

The Moving Light menu contains options to make programming Intelligent Fixtures on the Pearl very easy. It is accessed by pressing **Softbutton H** [ML Menu].

It looks like this :

> **Softbutton A** LOCATE FIXTURE
> **Softbutton B** ALIGN FIXTURE
> **Softbutton C** (Not used)
> **Softbutton D** RECORD GROUP
> **Softbutton E** DEFINE THE STAGE
> **Softbutton F** TRACKING OFF (on)
> **Softbutton G** Macro

Each function is accessed by pressing the appropriate **Softbutton**.

4.7.1 LOCATE FIXTURE

Locate Fixture puts the unit to Open White, no gobos or effects and with the Pan and Tilt both at 50% to help you find it.

- Turn the **Key** to **Program.** *Puts you in Live Program Mode menu.*

- Press **Softbutton H** [ML MENU]. *Puts you in the Moving Light menu.*

- **Select** the Fixtures to be Located. *Their LED's will light up.*

- Press **Softbutton A** [LOCATE FIXTURE].

4.7.2 Align Fixtures

This copies **ALL** the Attributes from the first selected Fixture to all the other selected Fixtures.

If you used a **Group**, the first selected Fixture is the first one you selected when originally storing the Group. If you selected Fixtures by holding down two **SWOP** buttons and automatically selecting the Fixtures in between, the first Fixture is the first **SWOP** button you held down, and the Fixtures are held to ascend sequentially through the Group. The last Fixture in the Group is the second **SWOP** button you held down.

- Turn the **Key** to **Program.** *Puts you in Live Program Mode menu.*

- Press **Softbutton H** [ML MENU]. *Puts you in the Moving Light menu.*

- Select the Fixtures to be Aligned. *Their LED's will light up.*

- Press **Softbutton B** [ALIGN FIXTURES].

Note that if you use this function with Tracking on, the Fixtures will all point at the same position on the stage rather than copying the absolute Pan and Tilt values. (See Chapter 11, *Tracking Moving Lights*).

4.7.3 Record Group

This records a **Group**. See Section 9.3 *Programming Groups* for more information on Groups.

4.7.4 Define the Stage and Tracking On / Off

These functions are discussed in depth in Chapter 11 *Tracking Moving Lights.*

4.7.5 Macros

Macros allow a pre-programmed set of values to be output to an Intelligent Fixture to operate a certain function in that fixture.

Typically this may involve setting a channel to a level, waiting for several seconds, then setting another channel to a set level and so on.

The function is similar to a chase but is operated by pressing a Softbutton.

For example a Macro has been designed to strike a Cyberlight,

Pressing the **Macros** option gives you a menu of any Macros available, and selecting a Macro from the menu sends appropriate DMX levels to selected Fixtures.

Pressing Softbutton H gives access to Page 2 of this menu.

See Section 26.11 MACROS for further information on how to write Macros.

4.7.6 Flip

A function for use with Moving Head Fixtures. They have two possible Pan and Tilt positions for each point on stage, and **FLIP** will alternate between them, allowing you freedom of movement across the area you wish to light without hitting a pan stop.

Pressing Softbutton H returns you to Page 1 of this menu.

4.8 The OFF button

This function allows individual Channels within a Fixture or all the Channels of a Fixture to be turned **OFF**.

4.8.1 Why we need an OFF function

Because this is the only way to remove a Channel from a Chase or Memory once it has been recorded in it. If a Channel or Fixture is **OFF**, it is not output from a Memory or Chase it has been recorded into.

Recording a Channel at zero is not the same as a Channel that is OFF.

Think of a Moving Head Fixture. With the Pan and Tilt at zero, the Fixture points up into the roof somewhere (if it is hung on a truss). If recorded into a Memory, this is a very different result from Pan and Tilt not being recorded into the Memory at all. If you have recorded a Memory or Chase with Channels in them that you no longer want recalled, use **OFF**.

You can turn Attributes **OFF** so that they will not output from a Memory or Chase, or turn **OFF** whole Fixtures.

⇒ *You can use **OFF** to exclude Fixtures that have inadvertently been stored in a Memory or Chase if you forgot to press **CLEAR**.*

You can also use the **OFF** function to turn **OFF** Attributes already stored in a Preset Focus. See section 8.13 *Switching OFF Attributes in Preset Focuses.*

4.8.2 To turn an individual Attribute OFF

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Select the Fixtures you wish to turn **OFF**. *Their LEDs will light up.*

- Press the blue **OFF** button. *Puts you in the OFF menu.*

- Select the **Attribute Bank** of the Attribute you wish to turn **OFF**. *Its LED lights up. Softbuttons B and C show the Attribute of the Selected lights available on the Selected Attribute Bank. If there are no Attributes on the selected Bank in the Selected Fixtures, the Softbuttons will display the message "Switch OFF", and no Attribute will be named.*

- Press **Softbutton B** or **C** to turn the named Attribute **OFF** for currently Selected Fixtures. *The Screen shows **OFF** for all Attributes currently switched **OFF**.*

- Function automatically exits. *Puts you back in LIVE PROGRAM MODE menu.*

4.8.3 To turn a Fixture OFF

This completely excludes a Fixture from a Memory or Chase Step.

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Select the Fixtures to be turned **OFF**. *Their LEDs will light up.*

- Press the **OFF** button. *Puts you in the OFF menu.*

- Press **Softbutton A** [Switch OFF Selected Fixtures]. *The Screen displays OFF next to the Channel numbers of these Fixtures in all Attribute Banks.*

- Function automatically exits. *Puts you back in LIVE PROGRAM MODE menu.*

4.8.4 Clearing Channels turned OFF

The **OFF** clears when you press CLEAR**.**

⇒ *You cannot individually clear Channels turned OFF.*

4.8.5 Turning Channels back ON again

You can turn Channels back on again by putting them into the Programmer again in the usual way, using the **Wheels**, typed in values or Preset Focuses. You can then re-record the Memory or Chase with the Channel **ON** as usual.

4.9 Controlling Attributes by typing in values

You can set the level of any Attribute of a Selected Fixture by typing in either the percentage value of the Attribute from 1 to 100, or the DMX value from 0 to 255.

- Turn the **Key** to **Program** or **RUN** and select **Take Over Run** mode.

- Select the Fixtures required. *Their LEDs will light up.*

- Type in the value you wish to enter for the Selected Fixtures, either in percent, or as a DMX value. *Puts you in the INPUT menu.*

- Select the appropriate Bank for the Attribute you wish to control. *Its LED lights up.*

  Softbuttons E and **F** will display any Attributes on the currently selected Attribute Bank exhibited by the Selected Fixtures as "ASSIGN INPUT TO (xxx)". No named Attribute indicates that Selected Fixtures do not have any Attributes controllable from the current Bank. The bracketed numbers indicate whether the number entered will be treated as a DMX value or a percentage.

- Press **Softbutton G** [SET INPUT TO 0..255 / %] to toggle the DMX and Percentage modes.

- Press **Softbutton E** or **F** [ASSIGN INPUT TO (xxx)] to apply your typed value to the Attribute named on the Softbutton.

- Function automatically exits. *Puts you back in LIVE PROGRAM MODE menu.*

4.10 Help and Hints

Problem : *LOCATE FIXTURE won't work.*
Solution : Some Fixtures use a zero value for the colour mix Channels to give white light. These Fixtures must have these Channels Inverted in the patch to work correctly with Locate Fixture. See Section 4.5 *Inverted Channels.*

Alternatively the personality can be altered to automatically invert the Channels. The latest personality files can be picked up from the Website at www.avolites.com.

Problem : *Colours and gobos are not crossfading.*
Solution : Set the Channels to be Fading.

Problem : *I have a Motor Speeds function on my Moving Lights. I have set my Pan, Tilt and Motor Speed Channels all to be Fading as I obviously want my movements to fade, but they are all behaving very strangely.*
Solution : By setting these Channels to be Fading, they are **all** implementing the Fade times programmed in your Memories and Chases, including the Motor Speed Channel. This is resulting in the Motor Speeds programmed being changed by the desk fades.
Either set all three Channels to Instant, and they will no longer listen to the desk Fade times, but only to the Motor Speed values, or don't use Motor Speed and leave the Pan and Tilt as Fading Channels using the desk fades.

Problem : *I tried to program a Colour Chase and a separate Pan and Tilt Chase, but I seem to have recorded some Pan and Tilt information into my Colour Chase, and the Fixtures keep moving out of the Pan and Tilt Chase.*
Solution : Use OFF to remove the Pan and Tilt Channels from the Colour Chase Steps.

5. Patching

5.1 Before Patching

Before you can control a Fixture or a Dimmer you must patch it. The patch function connects a desk channel to an actual output channel.

It is a good idea to do a **WIPEALL** before starting to patch the desk. See Section 1.7.1 *To do a WIPEALL.*

The Pearl gives you the option of either addressing your Dimmers and Fixtures and entering the addresses into the patch, or automatically generating addresses for Fixtures as you patch them. This second method has the advantage that it will make optimum use of the patch, and will not use any illegal addresses. (See Section 5.17 *Illegal Addresses).*

The desk will assign addresses from DMX Channel 1 upwards.

If you enter a DMX number the desk will patch upwards from that number.

⇒ ***Changing or moving an existing patch may result in losing data.***
Save your show before entering the patch if you have done any Programming that you wish to keep.
You can also return to the original version of the Patch if you make a mistake while altering it. (See Section 14.1.2 Saving your show to disk*)*

We have used the 'Hotel Room' theory of numbering our Preset Faders ie. On **Page 0** you find **Preset Faders 1 – 60**, on **Page 1** you find Preset **Faders 100 – 160** and so on.

5.2 Viewing the Patch

It is much easier to patch if you can see what you are doing. You can view the patch either by DMX channel or Fixture Patch (Patch by **Handle**) (See Section 5.4.1 *Handles.*). You can move round the Screens using the **Cursor Keys.**

The **Up** and **Down** keys move you up and down the Screen a channel at a time.

The **Left** and **Right** keys move you up and down the Screen a page at a time.

5.2.1 Viewing the DMX patch

- Press the **VIEW** button. *You do not have to be in the PATCH menu to do this*.

- **Either** type in the number **4** and **ENTER or** press **Softbutton C** [DMX PATCH].

- Press **EXIT** to quit.

5.2.2 Viewing the Fixture Patch (Patch by Handles)

This Screen is very useful as it tells you not only which Fixture is on each Handle, but for certain Fixtures, tells you its DMX address, address DIP switch settings, Personality DIP switch settings, etc.

- Press the **VIEW** button. *You do not have to be in the PATCH menu to do this*.

- **Either** type in the number **9** and **ENTER**
  Or press **Softbutton D** [FIXTURE PATCH]
  Or press a Handle **SWOP** button.

- Press **EXIT** to quit.

5.3 Selecting a DMX line

Pearl 2000 is capable of driving up to four DMX 512 lines. You select the line you are patching onto like this:

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the blue **PATCH** button on the Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press **Softbutton C** [SELECT A DMX LINE].

- Press **Softbutton A – D** to select the respective DMX line. *Menu autoexits to PATCH DIMMER OR DEVICE menu.*

- Press **EXIT** or the **PATCH** button to leave the Patch functions. *Puts you back in LIVE PROGRAM MODE menu.*

⇒ *An earlier model Pearl will only be able to drive one or two DMX 512 outputs, but the Pearl 2000 Software does not know this! It will let you patch onto outputs that your desk may not possess, so check with your supplier to find out the exact specification of the desk you are using before you start to patch anywhere other than on Line A.*

5.4 Patching terminology

5.4.1 Handles

A **Handle** is a vertical set of **two Preset Faders**, an **ADD** button and a **SWOP** button used to control a Fixture.

5.5 Patching Conventional lights

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the blue **PATCH** button on the Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

  The VGA Screen will automatically change to show which DMX addresses are in use.

- Select the **Page of Fixtures** that you want to patch onto.

  Selecting page 0 will allow you to patch Preset Faders 001 – 060.

  Selecting page 1 will allow you to patch Preset Faders 101 – 160

  Selecting page 2 will allow you to patch Preset Faders 201 – 260.

  Selecting page 3 will allow you to patch Preset Faders 301 – 360

- Press **Softbutton A** [DIMMER]. *Screen asks you to enter a DMX number and patch it on an ADD or SWOP button.*

- If you wish to change the DMX line you are patching onto, press **Softbutton E** [SELECT A DMX LINE], then press **Softbutton A – D** to select the respective DMX line. *Menu autoexits to PATCH DIMMER OR DEVICE menu.*

- Using the **Numeric Keypad** type the number of the **lowest DMX channel** you are going to use. *The Screen suggests the lowest DMX channel number available (1), but you can type over this.*

- Press a grey **Preset ADD** button to patch a DMX address onto Preset Faders 1 to 30 or a blue **Preset SWOP** button to patch a DMX address onto Preset Faders 31 to 60. *The DMX address automatically increments each time you patch a channel. This allows you to easily patch sequential addresses. You can type over the incremented values if you need to.*

⇒ *You can patch any number of Dimmer DMX Channels onto any Preset Fader.*

⇒ *If you intend to add Intelligent Fixtures to the patch later on, put your Dimmer Channels onto the **SWOP** buttons as Intelligent Fixtures are always patched onto **ADD** buttons.*

- Continue patching in this way until you have patched all the Dimmer Channels that you want to patch on this **Page of Fixtures**. *If you are only patching a sequential series of DMX Channels, this should simply involve pressing the **ADD** or **SWOP** buttons of the destination Preset Faders.*

- Select another **Page of Fixtures** and repeat the process if required. *You can patch a maximum of 240 Dimmer Presets in this way.*

- Press **EXIT** or the **PATCH** button to leave the Patch functions. *Puts you back in LIVE PROGRAM MODE menu.*

⇒ *EXIT as soon as you have finished patching since it is easy to leave the desk in patch and then to inadvertently patch a Dimmer or Fixture when meaning to recall a Preset Focus! (See Chapter 8 Preset Focuses.)*

⇒ *Once patched handles are immediately active and so can be used to bring up Channels straight away to check your patch.*

5.6 Patching more than one Dimmer onto a Preset Channel

The desk will allow you to do this in the normal way. This means that bringing up the Preset Fader will bring up two or more Dimmer Channels. Use **View DMX Patch** or **View Fixture Patch** to see what you are doing. See Section 9.1 *More about the Screen - using VIEW.*

⇒ *You cannot patch any given DMX Channel onto more than one Preset Channel.*

5.7 Patching Intelligent Fixtures.

- Turn the key to **Program**. *Puts you in LIVE PROGRAM MODE menu.*

- Put the **Personality Disk** in the disk drive.

- Press the blue **PATCH** button on the Program Select bank**.** *You are asked to choose DIMMER or DEVICE.*

    If you have the VGA Screen option this will now display which DMX addresses are in use, and which Fixture type is using them.

- Press **Softbutton B** [CHOOSE A FIXTURE]. *The disk is now read and a list of available Personalities is presented on **Softbuttons A** to **E**. More Fixtures can be listed by pressing **Softbutton F** [MORE]. **Softbutton G** [GO BACK] takes you back one page of Fixtures.*

- Select the Instrument you wish to patch from the list on the **Softbuttons**.

- You will now be presented with a menu asking if you want to automatically create **Preset Focuses**. Select **Yes** or **No** using the **Softbuttons.**

    Automatically creating Preset Focuses allows you to quickly create a show when programming time is limited. In general the pre-programmed Preset Focuses are arranged as 10 colours, 10 gobos and 10 positions on Preset Focus buttons 1 to 30.

    If you wish to totally customise how the Preset Focus buttons are used selecting **NO** will probably be best. **You cannot load automatically generated Preset Focuses except when initially patching**.

    See Chapter 8 *Preset Focuses* for more details.

- The disk is now read again and the Fixture is ready to patch. *Screen shows how the different **Attributes** of the Fixture are presented, and displays a DMX address at the top.*

    If you do not have the magnetic Attribute Bank label, it is worth copying this information onto the Attribute Bank select buttons. (Use tape to prevent damage.)

    You can use the address suggested by the desk or you can enter a new address on the **Numeric Keypad**. (The advantage of using the provided address is that there is no risk of conflict with previously patched Fixtures or Dimmers.)

- If you wish to change the DMX line you are patching onto, press **Softbutton E** [SELECT A DMX LINE], then press **Softbutton A – D** to select the respective DMX line. *Menu autoexits to PATCH DIMMER OR DEVICE menu.*

- Select the **Page of Fixtures** that you want to patch onto.

    Selecting page 0 will allow you to patch Handles 001 – 030.

    Selecting page 1 will allow you to patch Handles 101 – 130

    Selecting page 2 will allow you to patch Handles 201 – 230.

    Selecting page 3 will allow you to patch Handles 301 – 330

- Press a **Preset Fader ADD** button to patch the Fixture. *That Fixture is now patched onto this Handle. The Screen will now show the next free DMX address. Again you can use this or enter another address and patch more Fixtures by pressing **Preset Fader ADD** buttons.*

- If desired, you can select another **Page of Fixtures** and continue patching in the same way. You can use Preset Faders on the new page that you have used on a previous **Page of Fixtures**.

- When you have finished patching all your Fixtures of that type, you can either press **Softbutton A** [SELECT ANOTHER DEVICE], to patch more devices of a different kind, or **Softbutton F** [QUIT] or **EXIT.**

⇒ *Exit as soon as you have finished patching since it is easy to leave the desk in patch and then to inadvertently patch a Dimmer or Fixture when meaning to recall a Preset Focus!*

⇒ *Don't try to patch Intelligent Fixtures onto **Preset Fader SWOP buttons.** These are only available for patching Dimmer Channels onto. (See Chapter 5, Patching.)*

⇒ *Viewing Screen 9 (patch by Handle) will give you some helpful information about the Fixtures you are patching, such as DIP switch settings, (DIP stands for Dual In Line Package and it wasn't invented by Avolites!), DMX numbers etc. See Section 9.2.9* Screen 9 - VIEW PATCH BY HANDLE.

5.8 Patching a combination of Intelligent Fixtures and Dimmer Channels

Patch your Intelligent Fixtures as described in Section 5.7 *Patching Intelligent Fixtures.* They will be patched onto **ADD** buttons, and their Intensities will appear in Preset Channels 1 - 30. You can only patch one Intelligent Fixture onto each Handle.

Patch your Dimmer DMX Channels as described in 5.5 *Patching Conventional lights,* but only patch them onto **SWOP** buttons. Their Intensities will appear in Preset Channels 31 – 60. You can patch as many Dimmer DMX Channels as you like onto each Dimmer Preset.

This means that on Pearl 2000 you can patch up to 120 Intelligent Fixtures, plus up to 120 Dimmer Presets.

If you are not using 120 Intelligent Fixtures, you can patch additional Dimmer channels onto any unused **ADD** buttons, making up to a maximum of 240 Dimmer Presets if you have no Intelligent Fixtures at all.

5.9 Quickly creating a 1 to 1 Dimmer patch

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

    The VGA Screen will automatically change to show which DMX addresses are in use.

- Select the **Page of Fixtures** that you want to patch onto.

    Selecting page 0 will allow you to patch Preset Faders 001 – 060.

    Selecting page 1 will allow you to patch Preset Faders 101 – 160

    Selecting page 2 will allow you to patch Preset Faders 201 – 260.

    Selecting page 3 will allow you to patch Preset Faders 301 – 360

- Press **Softbutton A** [DIMMER]. *Screen asks you to enter a DMX number and patch it to an ADD or SWOP button.*

- If you wish to change the DMX line you are patching onto, press **Softbutton E** [SELECT A DMX LINE], then press **Softbutton A – D** to select the respective DMX line. *Menu autoexits to PATCH DIMMER OR DEVICE menu.*

- Press and hold down the grey **Preset ADD** button number 1. *The Preset A and B LED's will flash once.*

- Whilst still holding this press and release the grey **Preset ADD** button number 30. *The Preset A and B LED's will turn on whilst the desk is computing the patch and will then go out.*

- Select another **Page of Fixtures** and repeat the process if required. *You can patch a maximum of 120 Dimmer Presets in this way.*

- Press **EXIT** or the **PATCH** button to leave the Patch functions.

This gives you the maximum number of Channels accessible in **Two Preset Mode**. That means that both sets of Preset Faders control each Dimmer Channel. You have patched them to DMX output 1, so you need to ensure that your DMX cable is in the DMX socket 1 on the back of the desk.
To run in **Two Preset** Mode, you need to set User Setting 4 to 2 PRESET. (See section 12.4 *Setting 4. Run Modes*), as the desk defaults to **WIDE** mode after a **WIPEALL**.

If you want to run the desk in **Wide** mode, repeating the above directions on the SWOP buttons will 1 to 1 patch Channels 31 - 60 onto the top set of Preset Faders, leaving the original 30 Channels patched on the bottom Preset Faders. You can repeat this on each of the four Pages of Fixtures, allowing you to patch up to 240 Dimmer Presets in this way.

5.10 Fast patch

If you wish to patch a number of Dimmers or Fixtures in consecutive order you can do this as follows.

Make sure the desk is loaded with the Fixture type you want to patch, that you are on the correct **Page of Fixtures**, and that you have the correct DMX line selected. Type in the start address of the lowest Fixture if you have preaddressed the lights.

- Press the **ADD** or **SWOP** button of the Handle where you want the first Fixture patched.

- Press the **ADD** or **SWOP** button of the Handle where you want the last Fixture patched.

- Release the first button, then the second button. *The desk has patched the selected Fixtures consecutively in the direction of the button presses*.

5.11 Patching Dimmer Channels in with Intelligent Fixtures

Some devices such as par cans with colour changers on them or **VL5**^TM^ Wash Luminaires use a Dimmer to drive the lamp in the Fixture. In this case you want to be able to patch a Dimmer channel in with the rest of the Fixture so that it can be accessed as one unit.

Just patch the Fixture in the normal way onto a Preset **SWOP** button, and the Dimmer channel associated with it onto the same button.

5.12 Changing the DMX address of patched Dimmers or Fixtures.

You can repatch the DMX addresses connected to the Handles by repatching the Dimmer or device originally on the Handle but with the new DMX address entered. Any Programming involving the Fixture will be preserved.

⇒ *When changing the DMX address of a Dimmer or Intelligent Fixture, if you try to choose a DMX address that is currently in use by a different Fixture, **NO warning is given**. This will be changed in future Software revisions.*

The desk will make the patch, and the displaced Fixture that formerly occupied the DMX Address will be **Parked.** The Handle will still exist, but without any DMX Channels patched onto it. To see whether any Fixtures remain Parked at the end of a Repatch, you can **View** the **Fixture Patch**. (See section 5.2.2 *Viewing the Fixture Patch (Patch by Handles)).* Any Fixtures left Parked are marked as such under the DMX address column.

The programming associated with the Fixture is preserved, and you need to patch a new DMX address onto a vacant Handle to control it.

To repatch a Fixture :

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

    The VGA Screen will automatically change to show which DMX addresses are in use.

- Press **Softbutton E** [REPATCH FIXTURES] . *Puts you into the REPATCH FIXTURE menu.*

- Enter the new DMX start address for the Fixture that you want to repatch. If you need to repatch onto a different DMX output, press **Softbutton E** [SELECT A DMX LINE], then choose a new DMX output from the menu.

- Press the blue **SWOP** button of the **Handle** of the Fixture you wish to repatch, ensuring that you are on the correct **Page of Fixtures**.

- Press **ENTER** to confirm the change.

⇒ *Remember that patching a Dimmer onto a Handle already occupied by another Dimmer simply adds the new Dimmer to the Handle.*

⇒ *If you need to repatch a Fixture like the VL5^{TM} Wash Luminaire, which combines an Intelligent Fixture with a normal Dimmer Channel, you will need to repatch both the Fixture and the Dimmer.*

Do not delete anything or your programming may be lost!!

5.13 Changing the Handle of a Dimmer or Fixture

To change the Handle of a Dimmer or Intelligent Fixture, simply patch it again onto another Handle. You will have to press **ENTER** to confirm the move.

Changing the Handle of a Dimmer or Intelligent Fixture loses all the Programming for that device.

5.14 Deleting a DMX assignation

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue **Program Select** bank*. Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press the **DELETE** button on the blue **Program Select** bank. *Its LED flashes.*

- Type in the number of the DMX Channel you want to clear.

- Press **ENTER.**

- **Either** type in another DMX address to clear **or** press **EXIT** to quit**.** *Puts you back in the PATCH menu.*

⇒ *Use this feature with care, as it is possible to delete one or more of the Attributes of an Intelligent Fixture, which otherwise remains patched.*

5.15 Deleting a Handle

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the **PATCH** button on the blue Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press the **DELETE** button on the blue Program Select bank. *Its LED flashes.*

- Press the **ADD** or **SWOP** button of the Handle you want to clear.

- Press **ENTER.**

- **Either** press another **ADD** or **SWOP** button to clear another Handle **or** press **EXIT** to quit. *Puts you back in the PATCH menu.*

⇒ **Deleting a Handle loses all the Programming associated with it**. *You should therefore use this function with care!*

5.16 Deleting an entire patch

Since deleting all the handles loses all the data programmed with them anyway, the best way to do this is to do a **WIPEALL.** See 1.7.1 *To do a WIPEALL.*

5.17 Illegal Addresses

Some Fixtures can only be addressed at certain DMX addresses.

You should check this out before patching by reading the Operators Manual for the Fixture, looking on the back of the Fixture for specific information or asking the manufacturer or dealer for that particular Fixture. See *Appendix 4. Intelligent Fixture Manufacturers* for contact numbers.

Subject to this information being available to Avolites and in the Personality File, the desk will not allow you to patch at an illegal address, by giving the message ILLEGAL ADDRESS, you must now enter another DMX address.

5.18 Setting a patch level

Before patching a Dimmer you can optionally set the patch level.

Once you are in the Dimmer patch menu :

- Press **Softbutton A** [LEVEL = X%]. *You are asked for a percentage level for that DMX Channel.*

- Type in a percentage level and press **ENTER.**

That DMX Channel and all subsequent Channels will be limited to the level entered until you change it again. The default is **100%.**

5.19 Setting a Dimmer curve

Before patching a Dimmer you can optionally set the Dimmer curve.

Once you are in the Dimmer patch menu :

- Press **Softbutton B** [CURVE = X].

- Type in **1, 2, 3** or **4** and press **ENTER.**

Dimmer curve 1 is USER definable

Dimmer curve 2 is LINEAR.

Dimmer curve 3 is SQUARE.

Dimmer curve 4 is RELAY.

This DMX Channel and all subsequent ones will keep this Dimmer curve until you change it again. The default is **Linear.**

To make your own User Definable Curve, you need to have access to a PC. The definition is in the form of a simple text file. See *Appendix 7. User-defined Dimmer Curves* for further details.

5.20 How many Fixtures or Dimmer Channels can I control?

5.20.1 Maximum numbers of Intelligent Fixtures?

Provided that the DMX capability of your particular Pearl is not exceeded, you can control up to 120 Intelligent Fixtures from a Pearl 2000.

If you have a new Pearl 2000, with the words 'Pearl 2000' etched onto the front panel, you will have four DMX outputs available, giving a maximum number of 2048 DMX channels.

If you have one of the original style Pearls, it may have been modified to allow two DMX outputs, which can control 1024 DMX channels.

An older, unmodified Pearl only has one 512 channel DMX output.

5.20.2 Maximum numbers of Fixtures and Dimmers on the same desk

You can have up to 120 Dimmer Presets, each with an unlimited number of Dimmer DMX Channels patched onto it, along with 120 Intelligent Fixtures, subject to the DMX limits not being exceeded.

The Dimmer Channels associated with certain types of Fixtures like **VL5**^{TM} Wash Luminaires and lamps with Colour Changers are counted in with the Fixtures as they will be patched in with it. They do count towards the DMX Channel limit however.

5.20.3 The maximum number of Dimmer Channels with no Intelligent Fixtures

Any unoccupied Intelligent Fixture Preset can be used as a Dimmer Preset, but not vice versa. Hence, for every Intelligent Fixture less than 120, you can patch another Dimmer Preset. If you have no Intelligent Fixtures at all, you can use all the Presets on the desk for Dimmers, and control a total of 240 Dimmer Presets.

You can no longer patch Dimmer Channels onto the Attribute Banks.

5.20.4 Customising Personality Files to put Intelligent Fixture Attributes onto different Attribute Banks

It is possible to make special Personality Files that allocate Attributes to different Attribute Banks.

See the Personality File Programmers Manual for details.

5.21 DMX features

5.21.1 Assigning DMX lines to outputs

You can assign which DMX channel is output by which DMX output socket on the back of the Pearl.

The default settings are :

DMX Output 1	(Socket 1, pins 2 & 3)	>>	DMX channel A
DMX Output 2	(Socket 2, pins 2 & 3)	>>	DMX channel B
DMX Output 3	(Socket 1, pins 4 & 5)	>>	DMX channel C
DMX Output 4	(Socket 2, pins 4 & 5)	>>	DMX channel D

This is the cause of the apparent anomaly by which DMX lines in the patch are named A – D, but at the socket on the desk, they are labelled 1 – 4.

You can change them as follows :

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the blue **PATCH** button on the Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in the PATCH UTILITIES menu.*

- Press **Softbutton D** [SET DMX LINES]. *Puts you in the SET DMX LINES menu.*

- The LCD screen displays the four DMX channels A – D, while the VDU monitor shows you the current patch. Use the **Up** and **Down Arrow** keys to put the yellow highlighted cursor on the DMX channel you wish to change.

- Press **Softbutton A – D** to select the DMX line that you want to change the cursor value to. *Menu autoexits to PATCH DIMMER OR DEVICE menu.*

- Press **ENTER** to confirm all values until the menu exits. *Puts you in the Patch Utilities menu.*

- Press **EXIT** to quit the Patch Utilities menu.

- Press **EXIT** or the **PATCH** button to leave the Patch functions. *Puts you back in LIVE PROGRAM MODE menu.*

5.21.2 Reducing the number of DMX Channels

If you are not going to use all 512 channels on any of the DMX outputs, you can speed the output rate of the DMX by specifying the highest number of DMX Channel that the desk addresses. This means that it does not waste time outputting to channels that are never going to be used. There are two ways of doing this.

Either :

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the blue **PATCH** button on the Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in the PATCH UTILITIES menu.*

- Press **Softbutton D** [SET DMX LINES]. *Puts you in the SET DMX LINES menu.*

- Use the **Up** and **Down Arrow** keys to put the yellow flashing cursor on the 'MAX DMX CHANNELS PER LINE' value (Default is 512).

- Enter the new value of the highest DMX Channel that you are going to use. This must be between 48 and 512.

- Press **ENTER** to confirm the new value. The menu will exit. *Puts you in the Patch Utilities menu.*

- Press **EXIT** to quit the Patch Utilities menu.

- Press **EXIT** or the **PATCH** button to leave the Patch functions. *Puts you back in LIVE PROGRAM MODE menu.*

Or :

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press **Softbutton B** [USER SETTINGS]. *Puts you in the USER SETTINGS menu.*

- Use the **Up** and **Down Cursor Keys** to move down to access item 18 [DMX chans = XXX]. (Default is 512).

- Use the **Left** and **Right Cursor Keys** to scroll through DMX values from 48 to 512.

- Press **Softbutton F** [QUIT] to exit. *Puts you back in LIVE PROGRAM MODE menu.*

5.22 Finding 'lost' Fixtures

Sometimes there may be an occasion where a Fixture has been rigged with an unknown DMX start address. It is possible to scroll through a series of DMX addresses and search for the start address of the 'lost' Fixture. When you find it, the Fixture will go to its **Locate Fixture** state. (See section 3.5 *Using LOCATE FIXTURE*).

To find your 'lost' Fixture :

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Press the blue **PATCH** button on the Program Select bank. *Puts you in the PATCH DIMMER OR DEVICE menu.*

- Press **Softbutton F** [PATCH UTILITIES]. *Puts you in the PATCH UTILITIES menu.*

- Press **Softbutton E** [FIND FIXTURE]. *Puts you in the FIND FIXTURE menu.*

- The VGA Screen displays all the currently patched Fixture types. Use the **Up** and **Down Cursor Keys** to select the type of Fixture that you are looking for.

- Press **ENTER**. *Puts you into Search mode.*

- Press the appropriate **Softbutton** to change DMX line for the search if required. *VGA Screen shows new DMX line.*

- Begin the search by slowly moving Wheel A until the 'lost' Fixture makes a response. This outputs the values for the **Locate Fixture** state for the 'lost' unit on sequential DMX start addresses from DMX channel 1. When it broadcasts data down the DMX Channels of the 'lost' Fixture, the Fixture will respond.

- Use the **Up** and **Down Cursor Keys** for a much finer search of the DMX Channels once you have located the correct general area of the unknown address.

- When the 'lost' Fixture goes to its Locate Fixture state, the DMX Channel displayed on the monitor will its correct start address. It can then be repatched accordingly if required, or another search begun.

- Press **EXIT** to quit. *Puts you in the Patch Utilities menu.*

- Press **EXIT** to quit the Patch Utilities menu.

- Press **EXIT** or the **PATCH** button to leave the Patch functions. *Puts you back in LIVE PROGRAM MODE menu.*

5.23 Help and Hints

Problem : *Fixture does not respond correctly, some Channels do not work and others appear on the wrong Attribute Bank and are labelled incorrectly.*
Solution : The Fixture is probably addressed incorrectly. Check the address on the back of the Fixture matches the address it was patched at. Remember some binary DIP switches require you to add 1.
Note that Intellabeams and early Martin Fixtures address from 0 to 511 rather than 1 to 512, so the Fixture address must be set to 1 lower than the desk address.

Problem : *I can't remember the address used to patch a particular Fixture.*
Solution : Use **VIEW by Handle**. Press the **VIEW** button, then the **SWOP** button of the Fixture concerned. The address is displayed on the Screen.

Problem : *DMX instrument does not respond to commands properly, either by flickering or instability of a parameter. (For example the mirror keeps flipping to another position).*
Solution 1 : DMX not correctly terminated, Check termination switch or plug on last Fixture on DMX line.
Solution 2 : Some fixtures may not be able to receive DMX at the full rate. You can slow down the DMX transmission rate by adjusting User Setting 14. See Section 12.14 *Setting 14. FRAME + (X) mcS.* Note however that this will also slow the desk response down, especially the ADD and SWOP buttons.

Problem : *None of the Fixtures are responding.*
Solution 1 : Try terminating the DMX line - you need between 100 and 1000 ohms between pins 2 and 3 of the last Fixture in the DMX chain.
Solution 2 : Check that the desk is outputting DMX using a DMX tester / receiver.
Solution 3 : Check that you are plugged into the correct DMX output on the back of the desk.
Solution 4 : Check that you have not patched your rig onto a DMX output that your particular Pearl cannot drive. Original Pearls may only be able to output on one or two DMX lines.
Solution 5 : Connect one Fixture to the desk and set its start address to 001. Remove the DMX output cable from this Instrument to isolate it from the rest of the rig. Patch DMX 001 to 030 onto Preset Faders 1 to 30 as you would patch dimmers. Raise and lower these Playback Faders try to get a response from the Attributes of your Fixture. In this way you should be able to eliminate or identify the following possible problems :
- Incorrect addressing of Fixtures
- Wrong Personality File being used

- Channels on the Fixture that may need to be Inverted before **Locate Fixture** can be used
- A bad cable or Fixture elsewhere in the rig, corrupting the data stream.

Once you get one Fixture working, you can gradually add the rest of your rig **all** at address 001. They should all do the same as the first Fixture when you bring up the DMX Channels.
You can now re-address the rig and patch them, ensuring you use the correct Personality File. Other problems may be associated with the Fixture itself.
See *Appendix 4. Intelligent Fixture Manufacturers* for a list of contact numbers.

6. <u>Programming Memories</u>

This section assumes that you have devices patched on your Pearl, and that you are comfortable controlling them.

6.1 Recording Modes

These are different recording modes set in the USER SETTINGS menu. Whichever mode is active when you Record or Edit a Memory or Chase is the mode in which the Edits will be stored.

6.1.1 Record by Instrument

In this Mode, if you access **any** of the **LTP** Channels of a Fixture, **all** of the LTP Channels of that Fixture will be put into the Programmer and stored into any Memories or Chases programmed.

HTP Channels record as seen.

6.1.2 Record by Channel

Only Channels that have been Edited are put into the Programmer.

This means that you can make Chases, for example, which have only Intensity and Colour information in them. Because they have no Pan or Tilt data, they will run the colour Chase over the Pan and Tilt settings from another Memory or Chase.

HTP Channels record as seen.

6.2 Programming a Memory

Check you are in the correct Recording Mode before you start. See Section 6.1 *Recording Modes.*

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to clear the Programmer. (See 1.6 *The Programmer* for more details.)

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Create the scene you wish to record by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders**, and connecting the Wheels to different Attributes to create LTP looks.
  Alternatively use a **Preset Focus** to create a look. See Chapter 8 *Preset Focuses.*

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller. *There is no need to press ENTER.*

- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up and you can see which Playback Faders are free because their SWOP button LED's will flash.*

- Press the **SWOP** button of the Playback Channel you want to record the Memory onto. *The Memory is now recorded. The LED on the Playback Channel will light to indicate it has something recorded on it and the LED on the MEMORY button goes out.*

- Press **CLEAR** to clear the Programmer.

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

6.3 Using the TIMES menu

You may want your Memory to have Fade Time information programmed into it.

- Record the scene you want as a normal Memory. See Section 6.2 *Programming a Memory* above.

- Press **Softbutton C** [EDIT TIMES].

- **Either** press the **ADD** or **SWOP** button of the Playback Fader of the Memory you wish to add Timing to, **or** type in the Playback Fader number and press **ENTER**.

There are six **Timers** on the TIMES menu.

A Memory can only have FADE times. Putting values in WAIT times will have no effect.

6.3.1 Fade In Time

The **Fade In** time is the time it will take the **HTP Channels** to fade in when the Memory is activated.

6.3.2 Fade Out time

The **Fade Out** time is the time it will take the **HTP Channels** to fade out when the Memory is deactivated.

6.3.3 LTP Fade Time

The **LTP Fade** is the time it will take of all the Fading **LTP Channels** to complete their crossfade.

See Section 4.4 *INSTANT and FADING Channels.*

6.3.4 Entering a Fade time

You can enter different times for each timer using its **Softbutton.**

Softbutton A [WAIT IN]
Softbutton B [WAIT OUT]
Softbutton C [FADE IN]
Softbutton D [FADE OUT]
Softbutton E [LTP FADE]
Softbutton F [LTP WAIT]
Softbutton G [MODE = (X)]

Under each Softbutton label on the Screen is the time for that Timer.

The time can range from tenths of a second to 12 hours.

- Set each time by entering the time on the **Keypad** and pressing the appropriate **Softbutton**. Use the decimal point to separate hours, minutes, seconds and fractions.

For example

To set a time of 45 minutes :
Press **4 5 . .** then the relevant **Softbutton**.

To set a time of 1 minute 10 seconds :
Press **1 . . 1 0** then the **Softbutton [A - F]**

To set a time of half a second (0.5 seconds) :
Press **. 5** then the **Softbutton [A - F]**

- Press **ENTER** to record the Times.

6.3.5 Memory Mode Softbutton

There are three **Memory Modes** available; called 0, 1 and 2.

The Memory must be replayed in Memory Mode 1 or 2 for the Times to be effected. Entering Memory Times automatically sets the Memory Mode to 1.

You can change the Memory Mode by pressing **Softbutton G** [MODE = (X)] to cycle through the Modes. Press **ENTER** to save a change.

See Section 6.4 *Memory Modes* below.

6.4 Memory Modes

Memories can be replayed in one of three ways. The method of replay is called the **Memory Mode**. The Memory Mode is stored when the Memory is programmed. Different Memories can have different Memory Modes.

The **Memory Modes** are numbered **0**, **1** and **2**.

These work as follows :

6.4.1 Memory Mode 0

This is the basic Memory. **A new Memory defaults to Memory Mode 0**.

HTP Channels are controlled by the Fader level.
ie. There is no Timing associated with the Memory.

LTP Channels are activated as the Fader moves above the **Trigger Point**.

⇒ *Mode 0 has the fastest **SWOP** and **ADD** button responses.*

6.4.2 Memory Mode 1

This Mode allows Fade times as programmed in the EDIT TIMES menu. (See Section 6.3 *Using the TIMES menu.*)

Entering Memory Times to a Memory automatically sets the Memory Mode to 1.

HTP Channels fade up using the **Fade In** time when the Playback Fader is moved in the up direction or a Playback SWOP or ADD button is pressed.

HTP Channels fade out using the **Fade Out** time when the Playback Fader is moved in the down direction or a Playback SWOP or ADD button is released.

LTP Channels are triggered when the Fader moves above the **Trigger Point**.

> The trigger point can be set from the **USER SETTINGS** menu. See Sections 11.2 *Memory Fader ON* and 11.3 *Memory Fader OFF*.

⇒ *Use Mode 1 when you wish HTP Channels to fade up and down in their programmed time as you move the Fader.*

6.4.3 Memory Mode 2

In this Mode :

HTP Channels fade up using the **Fade In** time when the Playback Fader is moved in the up direction or a Playback SWOP or ADD button is pressed.

HTP Channels fade out using the **Fade Out** time when the Playback Fader is moved in the down direction or a Playback SWOP or ADD button is released.

Fading LTP Channels are controlled by the **PLAYBACK FADER POSITION**.

Instant LTP Channels are triggered when the Fader moves above the **Trigger Point**.

> The trigger point can be set from the **USER SETTINGS** menu. See Sections 11.2 *Memory Fader ON* and 11.3 *Memory Fader OFF*.

⇒ *Use this mode to control LTP Channels with the Fader. It is useful if you wish to change between two colours, or move to a particular pan and tilt position and then back again.*

When using this mode you should make sure that any fade is complete before changing direction of the Fader, otherwise the Fixtures may not return to the correct position.

⇒ *To make Fixtures follow Fader movement precisely you should record LTP FADE times of zero.*

6.4.4 Changing Memory Modes

Memory Modes are changed in the EDIT TIMES menu. (See Section 6.3.5 *Memory Mode Softbutton).*

Press **ENTER** to store changes to the Memory Mode.

6.5 Using the ADD and SWOP buttons with Memory modes

The **Playback ADD** and **SWOP** buttons mimic Playback Fader movement. Pressing the **ADD** button is equivalent to moving the Fader up to full, and releasing the **ADD** button is the same as moving the Fader down to zero.

The **SWOP** button is similar except all other Preset and Playback Faders are taken to zero (using times specified) except the Swopped Fader.

6.6 How Playback Faders run timed Memories

In all Memory Modes that use a time (Memory Modes 1 and 2), the Playback Fader level controls the percentage of the fade time that will run.

For example if a Playback Fader with a 10-second fade time is stopped at 30%, the timer will perform a 3-second fade to 30% of its level and then stop.

If the Fader is moved to **Full**, the Memory will continue to fade in over 7 seconds.

If the Fader is moved to **Zero**, the Memory will fade back out in 3 seconds.

6.7 Editing a Memory

Check you are in the correct Recording Mode before you start. See Section 6.1 *Recording Modes.*

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero** except the Playback Fader of the Memory you wish to edit.

- Create the scene you wish to record by raising **Preset Faders.**

- Press **CLEAR**. *This ensures there are no Channels in the Programmer from previous edits, which will otherwise be recorded into the Memory when it is edited.*

- **Lower** intensities by matching a Preset Fader with the recorded level, then moving the Fader down, or connect the **Wheel(s)** to the LTP Channel(s) you wish to change and use it alter the levels. **Raise** intensities by moving the Preset Fader up or using the **Wheels** as described above.

- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up. The LED of the Memory you are editing will not be lit as it already has something programmed on it.*

- Press the **SWOP** button of the Memory Playback Channel you were editing. *The Memory is now recorded. The LED on the MEMORY button goes out.*

- Press **CLEAR** to clear the Programmer. (See 1.6 *The Programmer* for more details.)

The Playback Fader retains all the information from the original Memory, except the Channels that have been changed. These are updated using the new Edits.

If the Playback Fader is raised, you must lower it before you raise it again to recall the Edited Memory.

If you wish you may now alter the MEMORY MODE or the FADE TIMES. (See Section 6.3 *Using the TIMES menu.*)

You can also use **Preset Focuses** to edit memories. This is described in Chapter 8 *Preset Focuses.*

6.8 Copying a Memory

The word **COPY** means two things when **COPYING** a Memory (or Chase).

It means that the original Memory is replicated, but it also means that all the replicas and the original are linked, and **changing ANY of the linked Memories changes ALL of them**. Deleting a Copy does not affect the other replicas.

To Copy a Memory :

- Press and hold down the grey **ADD** button of the Memory you wish to Copy. *You are asked to press a Playback SWOP button.*

- Press the **SWOP** button of the Playback Channel you wish the Copy to occupy. *You can change Roller Pages or Facets if you need to while the ADD button is still held down.*

Linked Copies can be replayed and edited like any other Memory, but any changes will affect **ALL** the Linked Memories.

6.9 Photocopying a Memory

If you want to duplicate a Memory (or Chase), but don't want it Linked to any other Memory, use **Photocopy.**

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **PHOTOCOPY** button on the Program Select bank. *Its LED will light up.*

- Press and hold down the grey **ADD** button of the Memory you wish to Photocopy. *You are asked to press a Playback SWOP button.*

- Press the **SWOP** button of the Playback Channel you wish the Photocopy to occupy. *You can change Roller Pages or Facets if you need to while the ADD button is still held down.*

6.10 Deleting a Memory

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DELETE** button on the Program Select bank. *Its LED will light up.*

- Press the Playback SWOP button **TWICE** of the Memory you want to delete. *The DELETE LED will go out, and so will the LED on the Playback Channel you just deleted, indicating that it is now empty.*

6.11 Viewing a Memory

To see the output of a Memory in Program or Run mode :

- Press the **VIEW** button.

- Press the **SWOP** button of the Memory you want to **VIEW***. The Playback Fader does not have to be up.*

- You can step through the Attribute Banks and see the desk outputs for each Attribute for the **VIEWED** Memory.
- Press **EXIT** to quit.

6.12 Using the RECORD STAGE function

6.12.1 Using Record Stage to build a Memory

Record Stage puts all the **HTP** Channels at the level at which they are currently seen on stage into the Programmer to be recorded into a Memory or Chase.

This does not put LTP Channels into the Programmer.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*
- Set up the stage look you wish to record.
- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up.*
- Press **Softbutton A** [PRESS TO RECORD STAGE].
- Make any further changes required for the Memory, and then record it in the normal way.

6.12.2 Recording HTP Channels as seen on stage into a Memory being edited

HTP Channels are **only** recorded into a Memory that is being edited if they have been turned on in the Programmer.

There may be occasions when it is desirable to take the HTP Channels being output and record all of these into a previously recorded Memory. You can do this using **Record Stage**.

Typically this can be used to reduce the level of all the HTP Channels in a particular Memory. The Playback Fader for that Memory is put up at the correct level, and the output recorded back into the Memory itself at the new level.

Another use is for this function is to incorporate one Memory into another existing Memory, at the level that is being output.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*
- Set up the stage look you wish to record.
- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up.*
- Press **Softbutton A** [PRESS TO RECORD STAGE].
- Re-store the Memory you are Editing in the usual way.

⇒ *Remember the edits recorded into a Memory are not made active on that playback until the Memory Fader is taken down and raised again, in some cases it may be useful to lower and raise the playback before pressing clear, therefore making the edits active.*

6.13 Recording and recalling Memories on the Graphics Tablet and Stage Remote

Memories can be recorded directly from the Graphics Tablet. See Section 15.9.3 *Record Memory* in the Graphics Tablet chapter.

Memories can be replayed directly from the Stage Remote. See Section 16.4 *Using the Remote to recall a Memory* in the Stage Remote chapter.

6.14 Help and Hints

Problem : *Memory does not replay after programming.*
Solution : Press the **CLEAR** button, or turn the **Key** to **Run.**

Problem : *Programmed Memories have disappeared.*
Solution : Check that you are on the correct Roller Page and Facet.

Problem : *Some HTP Channels do not replay.*
Solution : Check that they have not been reduced in the Reduction bank. See Section 9.9 *Reduction Faders.*

Problem : *Some Channels on Moving Lights do not replay.*
Solution : They probably have not been recorded. If you are using **Record by CHANNEL** then you must edit each channel that is to be recorded to put it in the Programmer. This means that you must access each one and do something to it, even if it is only reasserting the level it is currently at. See Section 6.1 *Recording Modes.*

Problem : *The Presets, Wheel and Tablet do not output to the stage. Playbacks work correctly.*
Solution : Check you have not selected BLIND mode. See Section 9.10 *Programming in BLIND mode.*

7. Programming Chases

This section assumes that you have devices patched on your Pearl, and that you are comfortable controlling them.

7.1 Recording Modes

These are different recording modes set in the USER SETTINGS menu. Whichever mode is active when you Record or Edit a Memory or Chase is the mode in which the Edits will be stored.

7.1.1 Record by Instrument

In this Mode, if you access **any** of the **LTP** Channels of a Fixture, **all** of the LTP Channels of that Fixture will be put into the Programmer and stored into any Memories or Chases programmed.

HTP Channels record as seen.

7.1.2 Record by Channel

Only Channels that have been edited are put into the Programmer.

This means that you can make Chases, for example, which have only Intensity and Colour information in them. Because they have no Pan or Tilt data, they will run the colour Chase over the Pan and Tilt settings from another Memory or Chase.

HTP Channels record as seen.

7.2 Programming a Chase

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **CLEAR** to clear the Programmer (See Section 1.6 *The Programmer* for more details).

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero.**

- Turn the **Roller** to the Facet you wish to record onto.

- Select **Roller Page** one, two or three. The **Roller Page Buttons** are located to the left of the Roller. *There is no need to press ENTER.*

- Press the blue **CHASE** button on the Program Select bank. *Its LED will light up and you can see which Playback Faders are free because their SWOP button LED's will flash.*

- Press the flashing **SWOP** button of the Playback Channel you want to record the Chase onto. *All the other Playback Fader LED's will stop flashing.*

- Create the scene you wish to record as Step 1 of your Chase by selecting the appropriate **Pages of Fixtures** and raising **Preset Faders**, and connecting the Wheels to different Attributes to create LTP looks. Alternatively use a **Preset Focus** to create a look. See Chapter 8 *Preset Focuses.*

- Press the flashing **SWOP** button of your Playback Channel to record the step. *The prompt line on the Screen tells you your next step number.*

- Repeat the previous two directions for as many steps as you wish to record. *There is no limit to the number of Chase steps provided that there is enough storage memory left in the desk.*

- Press the **CHASE** button again. *The Chase is now recorded. The LED on the Playback Channel will light to indicate it has something recorded on it and the LED on the CHASE button goes out.*

- Press **CLEAR** to release Channels from the Programmer.

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

It is very important to get into the habit of pressing CLEAR, to ensure that you do not end up recording Channels into your next Memory or Chase that are not intended.

7.3 Connecting a Chase

You can alter aspects of the Chase by **CONNECTING** it.

- Turn the **Roller** to select the **Roller Page** of the Chase you wish to **Connect**.

- Raise the Chase **Playback Fader** above the **Trigger Point**. *This is the point at which the Chase will start to run.*

- Press the blue **CONNECT** button in the Sequence Control area. *The LED's of all the Chases on this page of the Roller will flash.*

- Press the **SWOP** button of the Chase you want to Connect. *The Chase LED's stop flashing.*

We say the Chase is now **CONNECTED.**

7.4 Adjusting the Speed and Crossfade of your Chase

Connect the Chase. You can now control the **Speed** and **Crossfade** times of your Chase using the two **Wheels**.

- **Connect** the Chase as described in Section 7.3 *Connecting a Chase*.

- Move **Wheel A**, the **Speed** Wheel to speed up the sequence. *The Speed is displayed on the LCD Screen in the Wheel A Screen Wheel display box.*
  Move **Wheel B**, the **X fade** Wheel to change the crossfade between each step. *The crossfade percent is shown in the Wheel B Screen Wheel display box.*

⇒ *User Setting 13 selects the display to show Beats Per Minute or time in Seconds. See Section 12.13 Setting 13. SPEED IN SECONDS / BPM.*

A 0% crossfade means the steps will snap and FF% means the steps will Crossfade, such that at the end of the fade the next step will immediately start.

7.5 Stopping and Starting your Chase

The **STOP** and **GO** buttons stop and start a **Connected** Chase.

7.6 Stepping through a Chase

The **STOP** button also steps on through a stopped Connected Chase.

⇒ *Note that when stepping through a Chase in this fashion, the steps will be executed without any timing information that may be programmed in them.*

7.7 Changing the direction of a Chase

You can change the direction of a **Connected** Chase by using the three **Arrow Keys** at the bottom of the **Sequence Control** area. The **Right** and **Left Arrows** send the Chase **Forwards** and **Backwards** respectively, and the **Double-Ended Arrow** makes the Chase **Bounce** backwards and forwards, with the Right or Left Arrow indicating which direction it is currently going in.

You can also use the **Forwards** and **Backwards** keys to step through a Stopped Chase in the direction indicated by the arrow

7.8 Automatically connecting to a Chase

It may be useful to always have the Chase controls connected to the most recently replayed Chase. **User Setting 9** gives you this option and is set or cleared as follows :

• Turn the **Key** to **Program.** *Puts you in Live Program Mode menu.*

• Press **Softbutton B** [USER SETTINGS]. *Puts you in the User Settings Menu.*

Use the **Up** and **Down Cursor Keys** to move up and down the Menu to **Autoconnect** option (Setting 9).

Use the **Left** and **Right Cursor Keys** to toggle between **YES** and **NO**.

Enabling the **Chase Autoconnect** means that the most recently replayed Chase will automatically be Connected to the Wheel(s).

As you change Pages and Facets on the Roller, the most recently Connected Chase on each page or Facet will Autoconnect.

Use this Mode for fast access to Chases as they are replayed.

7.9 Putting Times into Chases

You may want your Chase to have Fade Time information programmed into it. There are two ways of doing this.

7.9.1 Global times Chases

Global times set **Fade** and **Wait** parameters that are applied to steps in a Chase. Chase steps which use Global times are called **Simple Steps.**

Global Times can either be entered by using the **Wheels** as described in Section 7.4 *Adjusting the Speed and Crossfade of your Chase*, or using the EDIT TIMES menu from the Live Program menu. When the EDIT TIMES menu is used in this way, it is called the Global Times menu. See Section 7.10 *The EDIT TIMES menu.*

7.9.2 Individual Step Times Chases

Individual Step Times set **Fade** and **Wait** parameters that are applied to individual Chase steps. Chase steps which use Individual Step times are called **Complex Steps.**

These are entered using the **LIVE TIME** and **NEXT TIME** buttons while editing a Chase. See Section 7.13 *Editing values in a Chase Step.*

If the **Wheels** or **Global Times** menu are subsequently used to change the Times or Crossfades of a Chase with Complex Steps, the time differential between the times of the steps is maintained until they hit zero or full.

⇒ *This may not give you the desired result, so it is better to change the Individual Step times by editing the Chase and entering new values for the steps that need changing.*

7.9.3 Building a Chase with Simple and Complex Steps..

You can combine Simple and Complex steps in a single Chase. Complex Steps will behave as described above if a Wheel is moved or a new Global Chase Time is entered, and Simple Steps will take these new Global times directly for their timing.

7.10 The EDIT TIMES menu

There are six **Timers** on the EDIT TIMES menu. Chases can use all of them.

7.10.1 Wait In Time

This is the amount of time that elapses when a Step starts before a **Fade In** starts.

7.10.2 Wait Out Time

This is the amount of time that elapses once a Step has completed its Fade In before its **Fade Out** starts.

7.10.3 Fade In Time

The **Fade In** time is the time it will take the **HTP Channels** to fade in when the Step is activated.

7.10.4 Fade Out time

The **Fade Out** time is the time it will take the **HTP Channels** to fade out when the Step is deactivated.

7.10.5 LTP Fade Time

The **LTP Fade** is the time it will take of all the Fading **LTP Channels** to complete their crossfade.

See Section 4.4 *INSTANT and FADING Channels.*

7.10.6 LTP Wait time

This is the amount of time that elapses when a Step starts before an LTP Fade starts.

7.10.7 Link ON or OFF

Linked Chase steps automatically run on one from the next. If you **Unlink** any steps, the Chase will stop at the Unlinked Step, and you have to press the **Playback ADD** button or the **GO** button to restart the Chase.

You must have the Chase Connected to restart it using the **GO** button.

7.10.8 Entering a Fade or Wait time

You can enter different times for each timer using its **Softbutton.**

> **Softbutton A** [WAIT IN]
> **Softbutton B** [WAIT OUT]
> **Softbutton C** [FADE IN]
> **Softbutton D** [FADE OUT]
> **Softbutton E** [LTP FADE]
> **Softbutton F** [LTP WAIT]
> **Softbutton G** [LINK = ON / OFF]

Under each Softbutton label on the Screen is the time for that Timer.

The time can range from tenths of a second to 12 hours.

- Set each time by entering the time on the **Keypad** and pressing the appropriate **Softbutton**. Use the decimal point to separate hours, minutes, seconds and fractions of a second.

For example

To set a time of 45 minutes :
Press **4 5 . .** then the relevant **Softbutton**.

To set a time of 1 minute 10 seconds :
Press **1 . . 1 0** then the **Softbutton [A** - **F]**

To set a time of half a second (0.5 seconds) :
Press **. 5** then the **Softbutton [A** - **F]**

- Press **ENTER** to record the Times.

7.11 Using the ADD and SWOP buttons when replaying a Chase

The effects vary considerably depending on how you have the desk configured, and which Run mode you are using. See Chapter 13 *Running your show* for more details*.*

7.12 Editing Global Chase Times

7.12.1 Editing Global Chase Times using the Wheels

Connecting a Chase and using the **Wheel(s)** in the normal way applies Global times to a Chase.

7.12.2 Changing Global Chase times using the EDIT TIMES menu Wheels

- Record the Chase you want as a normal Chase using the method in Section 7.2 *Programming a Chase* above.

- Press **Softbutton C** [EDIT TIMES].

- **Either** press the **SWOP** button of the Playback Fader of the Chase you wish to add Timing to.
  Or type in the Playback Fader number and press **ENTER**. Enter times into the EDIT TIMES menu as detailed in Section 7.10 *The EDIT TIMES menu* above.

7.12.3 LINKING a Chase

Pressing **Softbutton G** [LINK = (X)] in the EDIT TIMES menu toggles the setting of the **Links** for the whole Chase. The default is LINKS ON.

7.13 Editing values in a Chase Step

There are five new sequence control buttons on the Pearl 2000 designed to make editing Chases easier. They are the **LIVE TIME**, **REC. STEP**, **NEXT TIME**, **SNAP BACK** and **REVIEW** buttons. These replace the functions of the old **EDIT** button on original Pearls.

⇒ *When using these functions, always use the methods outlined below to ensure that you are Editing fully executed Steps. Editing states between Steps can lead to results you do not expect!!*

⇒ *If you are Editing a Chase running in RANDOM mode, you should change it back to NORMAL in the CHASE PARAMETERS while you make your Edits.*

7.13.1 To Edit a Chase Step using REC. STEP

This allows you to Edit a Chase Step in a **Connected** Chase.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Make sure all the **Master Faders** are at **full** and all the **Playback Faders** are at **zero** except the Playback Fader of the Chase you wish to edit.

- **Connect** the Chase to be Edited.

- **STOP** the Chase.

- **Either** use the **STOP** button to step onto the Chase Step to be edited, **or** type the step number into the Keypad and press **CONNECT** followed by **STOP**. *Places the step to be edited in the Programmer.*

- Press **CLEAR**. *This ensures there are no Channels in the Programmer from previous edits that will otherwise be recorded into the Chase Step when it is edited.*

- Make the required changes to the Chase Step using the **Preset Faders** and **Wheels** and **Preset Focuses** as usual. Remember that before you can change an Intensity value using a **Preset Fader**, you must match the existing value of the Channel in the Chase Step before it can be altered.

- Press the **REC. STEP** button in the Sequence Control Area. *The Screen displays the RECORD LIVE STEP menu. Prompt line confirms the number of the Step being Edited.*

- Press **ENTER** to confirm the change. *Puts you back in the LIVE PROGRAM MODE menu.*

- If you need to change more steps, any information currently in the Programmer from editing the previous step can be applied to other steps by simply using the **STOP** button to step onto the next step to be edited, and pressing the **REC. STEP** then the **ENTER** buttons.
Otherwise press **CLEAR** and make different edits to the next step.

7.13.2 *Changing the current Step Time using LIVE TIME*

This enables you to enter edit the Times of the **live** Step of a **Connected** Chase. The Step number is displayed on the VGA monitor as **LIVE**, and is defined as the last step to have been completely executed.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Connect** the Chase to be Edited.

- **STOP** the Chase.

- **Either** use the **STOP** button to step onto the Chase Step to be edited, **or** type the step number into the Keypad and press **CONNECT** followed by **STOP**. *Places the step to be edited in the Programmer.*

- Press the **LIVE TIME** button. *Puts you into the TIME INTO LIVE menu. This looks like the EDIT TIMES menu.*

- Enter **Fade** and **Wait** times for the Step being edited as if you were in the EDIT TIMES menu. (See Section 7.10 *The EDIT TIMES menu.*)

- Press **ENTER** for these changes to be effected. *Puts you back in the LIVE PROGRAM MODE menu.*

- Press **CLEAR** to release Channels from the Programmer.

7.13.3 *Changing the next Step Time using NEXT TIME*

This enables you to enter edit the Times of the **next** Step of a **Connected** Chase. The Step number is displayed on the VGA monitor as **NEXT**, and is defined as the next Chase Step that will be completed. It may already have started to execute.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Connect** the Chase to be Edited.

- **STOP** the Chase.

- **Either** use the **STOP** button to step onto the step before Chase Step to be edited,
or type the step number into the Keypad and press **CONNECT**. *Lines up the entered Step number as the next Step to be run.*

- Press the **NEXT TIME** button. *Puts you into the TIME INTO NEXT menu. This looks like the EDIT TIMES menu.*

- Enter **Fade** and **Wait** times for the Step being edited as if you were in the EDIT TIMES menu. (See Section 7.10 *The EDIT TIMES menu.*)

- Press **ENTER** for these changes to be effected. *Puts you back in the LIVE PROGRAM MODE menu.*

- Press **CLEAR** to release Channels from the Programmer.

7.13.4 LINKING an Individual Chase Step menu

Pressing **Softbutton G** in the **TIME INTO LIVE** or **TIME INTO NEXT** menu toggles the setting of the **Link** for the Chase Step.

7.13.5 Making an Individual Chase Step SIMPLE or COMPLEX

Pressing **Softbutton H** [Save as SIMPLE / COMPLEX] in the **TIME INTO LIVE** or **TIME INTO NEXT** menu toggles making the Chase Step **Simple** or **Complex**. The change is recorded on the Prompt line.

Making it **Simple** overrides all the Individual Step Time edits. It will then use Global timing parameters.

Making it **Complex** uses the current times for the Individual Step.
If none have been entered, default is :
All **Fades** are **1** second.
All **Waits** are **0** seconds.

7.13.6 To REVIEW your changes

Pressing the **REVIEW** key sends your Edited Chase back to the Step before your Edits in zero time, then sets the Chase running using any programmed Times, so that you can review your changes. You can rerun the Edits as many times as you like by pressing the **REVIEW** key again. The Chase does not have to have stopped.

7.13.7 The SNAP BACK function

The **SNAP BACK** key goes backwards one Step at a time with zero timing through a Stopped or running Chase, without reversing the direction of the Chase.

7.14 Editing Chases using UNFOLD

UNFOLD is a wonderful function which takes a Chase and puts all its individual steps onto individual Playback Faders for very easy editing.

To **UNFOLD** a Chase :

- Press the blue **UNFOLD** button. *Its LED lights up.*

- Press the **SWOP** button of the Chase to be UNFOLDED. *The UNFOLD LED remains on, LED's appear on the Playback Faders occupied by the Chase Steps and the Screen displays the UNFOLD menu.*

7.14.1 Checking the steps

To check any of the steps, raise the Playback Fader as you would with a Memory. The steps will replay with any Times assigned to them. You can now edit the Chase steps using the **UNFOLD** menu.

7.14.2 The UNFOLD menu

The UNFOLD menu looks like this :

Softbutton A [RECORD]
Softbutton B [EDIT TIMES]
Softbutton C [INSERT]
Softbutton D [DELETE]
Softbutton E [PREVIOUS 15 STEPS]
Softbutton F [NEXT 15 STEPS]
(Softbutton G)

7.14.3 RECORD

Make any changes to the scene stored in any Chase step as you would with a Memory, matching and then altering intensity levels with **Preset Faders** or using **Wheels** to change LTP Attributes.

To store the changes :

- Press **Softbutton A** [RECORD]. *The Screen asks you to press a SWOP button.*

- Press the SWOP button of the Chase Step you wish to record the changes onto*.*

7.14.4 EDIT TIMES

Use the EDIT TIMES menu to enter Timings into a Chase Step.

Screen 11 is automatically displayed. This shows you which Playback Channels have Chase Steps on them, and indicates which ones are Simple, and which are Complex.

- Press **Softbutton B** [EDIT TIMES]*. Screen lists all Chase Steps with a 'c' for Complex or an 's' for Simple.*

- Press the **SWOP** button of the Chase Step you wish to edit*. Enter times in the same way as the TIME INTO LIVE or TIME INTO NEXT menus.*

- Press **ENTER** to enter the times.

7.14.5 DELETE

To **DELETE** an **UNFOLDED** Chase Step :

- Press **Softbutton D** [DELETE].

- Press the **SWOP** button of the Playback Fader of the Chase Step you wish to Delete*.*

- Press **ENTER** to confirm the DELETE, otherwise press **EXIT.**

- You may then wish to Renumber following the procedure in Section 7.14.7 *Renumbering the UNFOLDED Chase*.

⇒ *You cannot use the blue DELETE button on the Program Select bank for this function.*

7.14.6 INSERT

To **INSERT** an **UNFOLDED** Chase Step :

- Set up the look you wish to record on the new Chase Step.

- Press **Softbutton C** [INSERT].

- Press the **SWOP** button of the Playback Fader of the Chase Step **before** which you want to Insert a Step.
  If you want the Chase Step on the end of the Chase, use the first **vacant** Fader **after** the last Chase Step. *An extra Playback SWOP LED lights up and the Screen displays the new Chase Step. The desk will have picked a suitable Step number for it, which will be a decimal number between the two step numbers either side.*

⇒ *You must use the Softbutton for this, not the blue INSERT button on the Program Select bank for this function.*

7.14.7 Renumbering the UNFOLDED Chase

You may wish to renumber a Chase because you have added new Steps, which currently have decimal Step numbers, or because you have deleted Steps, and have Step numbers missing.

If you want to **RENUMBER** the Chase :

- Press **Softbutton C** [INSERT] again.

- Press **Softbutton A** [RENUMBER].

- Press **Softbutton F** [YES] to confirm that you want to renumber otherwise press **Softbutton A** [NO].

- Press **EXIT** to quit to INSERT function.

7.14.8 PREVIOUS 15 STEPS

As the Pearl only has 15 Playback Faders you cannot fit more than 15 Chase Steps onto the Playback Faders at a time. Pressing this button puts the previous 15 steps of a long Chase onto the Playback Faders for editing. If you are already at the start of a Chase, this function will do nothing.

7.14.9 NEXT 15 STEPS

And surprise surprise, this puts the next 15 Chase Steps onto the Playback Faders so that you can edit any of the Steps in a very long Chase. If you are already at the end of a Chase, this function will do nothing.

7.14.10 Exiting UNFOLD

To exit **UNFOLD** :

- Press the **UNFOLD** button again. *Its LED will go out, and you will be restored to the Playback page you started with.*

7.15 How Playback Faders run timed Chases

The Playback Fader will govern the maximum level to which an HTP Channel will output, but it will not affect any of the Times.

The LTP Channels run as normal.

7.16 Copying a Chase

The word **COPY** means two things when **COPYING** a Chase (or Memory).

It means that the original Chase is replicated, but it also means that all the replicas and the original are linked, and **changing ANY of the linked Chases changes ALL of them**. Deleting a Copy does not affect the other replicas.

To Copy a Chase :

- Press and hold down the grey **ADD** button of the Chase you wish to Copy. *You are asked to press a Playback SWOP button.*

- Press the **SWOP** button of the Playback Channel you wish the Copy to occupy. *You can change Roller Pages and Facets if you need to while the ADD button is still held down.*

Linked Copies can be replayed and edited like any other Chase, but any changes will affect **all** the Linked Chases.

⇒ *A good idea if you need to run the same Chase at different times throughout your show, is to Copy the Chase onto the same Playback Fader of each Roller Page or Facet you require. This way, you can raise and lower the same Fader or use the same ADD button to start the Chase.*

7.17 Photocopying a Chase

If you want to duplicate a Chase (or Memory), but don't want it Linked to any other Chase, use **PHOTOCOPY**.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **PHOTOCOPY** button on the Program Select bank. *Its LED will light up.*

- Press and hold down the grey **ADD** button of the Chase you wish to Photocopy. *You are asked to press a Playback SWOP button.*

- Press the **SWOP** button of the Playback Channel you wish the Photocopy to occupy. *You can change Roller Pages if you need to while the ADD button is still held down.*

7.18 To jump to any Chase step

You can go to any Chase Step in a Connected Chase whether it is stopped or running. If it is running, it will jump to the Chase Step and continue to run.

You can do this in Program or Run mode.

- **Connect** the Chase.

- Type the step number on the **Keypad**. *Do not press ENTER.*

- Press the **Connect** button.

The result of this is that an existing Fading Chase Step will immediately terminate, and the new step will Fade in using its programmed Times. If the step is Unlinked, you must press the **Go** button.

7.19 The Screen Chase control box

At the bottom of the Screen is the **Chase Control Box**. It is to the left on the Pearl.

This box shows in figures from the top down :

The **Next step**
The **Connected Chase** number
The **Live step.**

The **Fade Times** are represented by three vertical progression bars and the **Wait Times** are represented by three horizontal progression bars.

An asterisk next to the Chase number indicates that the Chase Speed has been modified but not saved.

7.20 Clearing a Temporary Speed and Crossfade

To clear a temporary Speed and Crossfade on a Connected Chase :

- Press the **CONNECT** button. *Puts you into the Connect menu.*

- Press **Softbutton A** [CLEAR TEMPORARY SPEED].

7.21 Chase Speeds in BPM or Seconds

User Setting 13 gives the option of Chase Speeds being displayed in **Beats Per Minute** or **Seconds.** See Section 12.13 Setting 13. SPEED IN SECONDS / BPM.

7.22 Setting the Chase Speed by tapping the beat

You can easily set a Chase speed from a musical beat. This is only available in Run mode.

- Turn the **Key** to **Run**. *Screen displays whichever Run mode you are in.*

- Bring up a Playback Fader to run a Chase.

- **Connect** the Chase.

- Tap **Softbutton G** [TAP TWICE TO SET CHASE SPEED] **twice** to set Chase time.

The Chase will now play at the rate set by the taps.

Save the Speed using the Save Speed function in the Chase Parameters menu. See Section 7.27.1 *Softbutton A - SAVE SPEED.*

7.23 Deleting a Chase

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DELETE** button on the Program Select bank. *Its LED will light up.*

- Press the Playback SWOP button **TWICE** of the Chase you want to delete. *The DELETE LED will go out, and so will the LED on the Playback Channel you just deleted, indicating that it is now empty.*

7.24 Deleting a Chase Step

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Connect** the Chase.

- Press the blue **DELETE** button on the Program Select bank. *Its LED will light up.*

- Type in the number of the Chase Step you wish to delete and press **ENTER.** *Screen asks you if you are sure you want to delete the step.*

- Press **Softbutton A** [YES] to confirm the deletion or **Softbutton F** [NO] to stop it.

See also 7.14.5 *DELETE* in the *UNFOLD* Section.

7.25 Inserting a Chase Step

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Connect** the Chase.

- Set up the step you wish to Insert.

- Press the blue **INSERT** button on the Program Select bank. *Its LED will light up*.

- Type in the number of the Chase Step you wish to Insert and press **ENTER.**
  The Step Number should be a decimal value between the two step numbers you wish it to appear between*.*

The new step appears as the Step number you entered.

See also 7.14.6 *INSERT* in the *UNFOLD* Section.

7.26 Renumbering a Chase

If you have **Inserted** or **Deleted** steps, you can renumber the Chase so that the Steps are all whole numbers starting from 1.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- **Connect** the Chase.

- Press the blue **INSERT** button on the Program Select bank. *Its LED will light up*.

- Press **Softbutton A** [RENUMBER]. *Screen asks you if you are sure you want to renumber Chase.*

Press **Softbutton F** [YES] to confirm the renumbering or **Softbutton A** [NO] to stop it.

See also Section 7.14.7 *Renumbering the UNFOLDED Chase.*

7.27 Setting the Chase Parameters

To access the **Chase Parameters** menu :

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **Softbutton A** [CHASE PARAMETERS].

This function allows you to specify how the **Connected** Chase will replay. There are two Screens of options toggled by pressing **Softbutton F** [MORE].

⇒ *The second Screen has options that were previously Global and used to be found in the USER SETTINGS options.*

On **PAGE 1** are :

7.27.1 Softbutton A - SAVE SPEED

This saves the temporary speed that may have been set by moving the **Wheel(s)** after programming.

7.27.2 Softbutton B - SAVE DIRECTION

This allows the Chase direction to be recorded, the options being forward, backwards, and bounce.

7.27.3 Softbutton C - NORMAL / RANDOM

This allows the steps to be replayed in random order. Useful for disco effects.

7.27.4 Softbutton D - STOP ON FINAL STEP?

This allows you to stop the Chase on the last step. Consider making this a blackout step, then you may press **GO** to activate some one off effect whenever you require it.

Press **Softbutton G** [MORE] to access **PAGE 2 :**

7.27.5 Softbutton A - FADER STOPS /STARTS CHASE / FADER WILL RELOAD CHASE / FADER STOPS, GO TO START CHASE

These three options control what happens when a Chase Playback Fader is moved from and to zero.

FADER STOPS / STARTS CHASE starts the Chase as the Playback Fader is moved up and stops the Chase when it is moved down to zero. Moving it up again causes the Chase to start from the position it was stopped at.

FADER WILL RELOAD CHASE always starts the Chase from the first step whenever the Playback Fader is moved up from zero.

FADER STOPS, GO TO START does not start the Chase until the **GO** button is pressed after the Playback Fader is moved up.

7.27.6 Softbutton B - WAIT AND FADE ALL STEPS / SKIP FIRST WAIT TIME / SKIP FIRST WAIT AND FADE TIME

These options control how the first step of the Chase is run.

WAIT AND FADE ALL STEPS uses the times exactly as programmed.

SKIP FIRST WAIT TIME removes the first **Wait** time so starts the **Fade** as soon as the Playback Fader is moved up.

SKIP FIRST WAIT AND FADE TIME places the first step on the output as soon as the Playback Fader is moved up. Think of this option as removing all the first step's times.

7.27.7 Softbutton C - MANUAL MODE ALLOWED / DISALLOWED

When manual mode is **allowed, Wheel A** can be used to manually fade the step.

The **Wheel** output is fed into the Timer input; thus if a long time has been programmed into the step, more turns of the **Wheel** will be required to Fade into the step.
If a short time has been programmed into the step only a small number of turns will be required. This allows you to customise how the **Wheel** will control the Fade.

⇒ *If manual mode is **disallowed** the Wheel cannot be used to control the fade.*

7.27.8 Softbutton D - SPEED WHEEL ALLOWED / DISALLOWED

This option allows or disallows the **Speed Wheel**.

7.28 Previewing Chase Steps

To see the output of a Chase Step in Program or Run mode :

- Press the **VIEW** button.

- Press the **SWOP** button of the Chase you want to **VIEW**. *The Playback Fader can be up or down. Screen 6 (Preview Screen) is automatically displayed.*

    You will **PREVIEW** step 1 of the Chase.

- You can step through the Attribute Banks and see the desk outputs for each Attribute for the **VIEWED** Chase Step on the VGA monitor. You can use the **Left** and **Right Cursor Keys** to step through incremental Chase Steps. *You are **VIEWING** the Steps independently of any Chase Steps currently being output.*

- Press **EXIT** to quit.

7.29 VIEWING a Connected Chase

To see the live output of a Connected Chase in Program or Run mode :

- **Connect** your Chase.

Either :

- Press the **VIEW** button.

- Press the **CONNECT** button*. The Playback Fader can be up or down. Screen 6 (Preview Screen) is automatically displayed.*

    The VDU shows the current output from the Connected Chase.

- You can step through the Attribute Banks and see the Chase outputs for each Attribute for the **VIEWED** Chase Step on the VGA monitor.

- Press **EXIT** to quit.

Or :

- Press the **VIEW** button and type in 5 on the Keypad and ENTER, or use **NEXT SCREEN** to scroll onto Screen 5 (Chase Times).

- Press **EXIT** to quit.

⇒ *In some cases it may be useful to make a COPY of a Chase allowing previewing and editing of steps of a Chase whilst running the same on another playback. This also allows you to easily jump to a step out of sequence by setting the second Fader to a different step and manually fading between the two.*

⇒ *You can jump to any Chase step by selecting the step on the keypad and pressing the **CONNECT** button.*

7.30 Recording and recalling Chase Steps on the Graphics Tablet and Stage Remote

Chase Steps can be recorded directly from the Graphics Tablet. See Section 15.9.4 *Record Step* in the Graphics Tablet Chapter*.

Chase Steps can be replayed directly from the Stage Remote. See Section 16.5 *Using the Remote to recall and step through a Chase* in the Stage Remote Chapter.

7.31 Help and Hints

Problem : *Chase does not replay after programming.*
Solution : Press the **CLEAR** button, or turn the **Key** to **Run.**

Problem : *Programmed Chases have disappeared.*
Solution : Check that you are on the correct Roller Page / Facet.

Problem : *Some HTP Channels do not replay*.
Solution : Check that they have not been reduced in the Reduction bank. See Section 9.9 *Reduction Faders*.

Problem : *Some Channels on Moving Lights do not replay*.
Solution : They probably have not been recorded. If you are using **Record by CHANNEL** then you must edit each Channel that is to be recorded to put it in the Programmer. This means that you must access each one and do something to it, even if it is only reasserting the level it is currently at. See Section 6.1 *Recording Modes.*

Problem : *The Presets, Wheel and Tablet do not output to the stage. Playbacks work correctly.*
Solution : Check you have not selected BLIND mode.

7.31.1 DMX limitations on Chase Speeds

The following text explains why only some BPM rates are allowed.

Given that every step of a sequence MUST be output (otherwise some critical information may not get to a Fixture), the fastest Chase speed in BPM is determined by the DMX refresh rate.

The maximum theoretical DMX refresh rate is 44 times a second or 2640 times a minute. In practice this is not normally met, and on the Pearl a speed of 2400 can be achieved. In other words the maximum number of chase steps that can be output in one minute is 2400.

The next rate down is that on every other DMX cycle a new step is output, giving 1200 steps per minute. The next speed down from this is that on every third cycle a step is output, giving 800 steps per minute. This is how BPM's of 2400, 1200, 800, 600 etc. are computed.

If a channel is to fade from 0% to 100% or 100% to 0% and every least significant bit (LSB) which is the smallest level change a channel can make then it will take just over 8 seconds for an 8 bit channel fade and over 27 seconds for a 16 bit channel. This is why many moving lights use smoothing to give smooth pan and tilt movement.

These limitations are inherent problems in DMX.

8. Preset Focuses

8.1 FOCUSES - some definitions

The word **FOCUS** tends to crop up a lot in Lighting. For the purposed of this Manual, have defined the term Focus very clearly to avoid confusion.

"**Focus**" used to describe the direction in which Fixtures are pointed to illuminate a space or object will be called a **Positional Focus**.

"**Focus**" referring to the sharpness or fuzziness of a projected image will be called **Sharpness.**

"**Focus**" meaning a stored reference for a Fixture Attribute will be called a **Preset Focus.**

8.2 What is a Preset Focus?

You can consider **Preset Focuses** as building blocks that are then used to build Memories or Chase Steps.

⇒ ***Preset Focuses can contain any or all of the Attributes of a Fixture****.*

eg. You can have a Colour Preset Focus that contains all your Fixtures of whatever flavour in the colour red. This may mean that completely different values have been stored for your colour changers than for your Intellabeams, but the result is that you can Select your entire rig of Intelligent Fixtures, recall this Preset Focus and they will all go red.

When you use a Preset Focus to build a cue, you store a reference to the Preset Focus, **not** the absolute Channel levels the Fixture is currently outputting**. The Fixture retrieves the values from the Preset Focus**. Therefore you can change a Preset Focus and have the revised information replayed in Memories and Chases that use it.

This is very handy!!

eg. If you are touring a show, the truss height and position relative to the stage may be very different from one day to another. You can store **Positional** Preset Focuses to enable you to light the same stage positions every day without having to edit every cue. Checking and setting Preset Focuses is far easier than editing each Memory.

A clever use of Preset Focuses is to align colours on analogue colour changers. Different changers may require different levels to go to the same colour. You can make up Colour Preset Focuses to compensate for this. If you have to change out a colour changer simply correct the Preset Focuses with the new unit and the Memories will be correct.

Preset Focuses can contain more than one Attribute. You could make up Gobo Preset Focuses, which not only store a gobo, but the optimum Sharpness value for projecting it clearly, but each Preset Focus can only have one value for each Attribute for each Fixture.

8.3 The Focus Mask

The Focus Mask is unchanged from older versions of the Pearl, except that now it can only be altered via the USER SETTINGS menu. The reason I mention this is that the result of this is that a whole load of problems caused by people inadvertently changing it have now been avoided, so it is of less importance to us. It is still a good thing to understand it though! Throughout this section I have assumed that the Focus Mask retains its Default settings, as you would be foolish to change them until you are experienced enough that you no longer need this manual!!

8.3.1 How the Focus Mask works

Each Preset Focus can store one (and only one) value for each Attribute for each Fixture. Sometimes a Preset Focus will only have one kind of Attribute in it, but it is important to realise that it is capable of storing a value for each Attribute of your Fixture.

The Focus Mask determines which of those Attributes you are allowed to access from each of the Attribute Banks. In general, default settings only let you see the same Attribute as the Attribute Bank you are currently in, so from the Pan and Tilt Attribute Bank, you can only store and recall Pan and Tilt Preset Focuses. This means that if you recall any Preset Focus from the Pan and Tilt Attribute Bank, you are not going to have the lights change gobo. Similarly if you store a Preset Focus whilst in the Pan and Tilt Attribute Bank, you are not going to store the gobo. To store the gobo, you should go to the Gobo Attribute Bank.

8.3.2 Default settings of the Focus Mask

After a **WIPEALL** the Attributes in the **Focus Mask** are defined as follows :

Note that :

In Attribute Bank 1 **ALL** Attributes are set.

In Attribute Banks 4, 9 and 10, which are usually used to control Colour Wheel and Colour Mix functions, all **Colour** Attributes are set.

Attribute button 11 is a **Shift** key, which allows access to another page of Attribute Banks. There are no Fixtures at present which use Attribute Banks 11 – 20, but there may be in future.

Attribute Bank 12 is for Reduction functions. See section 9.9 *Reduction Faders* for more details.

Bank	Attribute	Default Focus Mask
1	DIMMER	**ALL ATTRIBUTES**
2	SHUTTER IRIS	SHUTTER IRIS
3	PAN TILT	PAN TILT
4	COLOUR WHEEL 1 COLOUR WHEEL 2	**COLOUR WHEELS 1 & 2 YELLOW / EFFECT MAGENTA / CYAN**
5	FOCUS ZOOM	FOCUS ZOOM
6	GOBO WHEEL 1 GOBO WHEEL 2	GOBO WHEEL 1 GOBO WHEEL 2
7	GOBO SPIN 1 GOBO SPIN 2	GOBO SPIN 1 GOBO SPIN 2
8	SPEED PAN & TILT SPEED	SPEED PAN & TILT SPEED
9	YELLOW EFFECT	**COLOUR WHEELS 1 & 2 YELLOW / EFFECT MAGENTA / CYAN**
10	MAGENTA CYAN	**COLOUR WHEELS 1 & 2 YELLOW / EFFECT MAGENTA / CYAN**
11	(SHIFT KEY)	-
12	(REDUCE FIXTURE INTENSITY)	-

8.3.3 To check the settings on the Focus Mask

To see the settings on the Focus Mask for each Attribute Bank, you can do the following.

- Press **CLEAR** to ensure that nothing is Selected.

- Press the Blue **STORE FOCUS** button. The Focus Mask for the current Attribute Bank is shown by the LEDs illuminated on the Attribute Bank buttons. In most cases they will only have one Attribute, and that will be identical to the Bank you are currently in.

- Select any other Attribute Banks, and see the Focus Masks for them. Have a look at the LAMPS bank, and the Colour Banks.

- Press the **STORE FOCUS** button again to exit. The lit LED now indicates the Attribute Bank you are in, not the Focus Mask of that Bank.

8.3.4 Using the Focus Mask

You will notice that the LAMPS Focus Mask has all Attributes enabled. **Be very careful – this means that if you store OR EDIT Preset Focuses from the LAMPS Bank, it will store current values for all Attributes in the Programmer. This will overwrite other values for Attributes stored on this Preset Focus!!**

The important point to grasp is that all the Focus Mask does is to enable access to different parts of the Preset Focuses. The Pan and Tilt information in Preset Focus 1 is the same, whether you are looking at it from the LAMPS bank or the Pan and Tilt Bank, and it can be altered from any Attribute Bank whose Focus Mask allows access to it. The difference is, that in LAMPS you can see **all** the Attributes stored, not just one of them.

It is the difference between standing in a room, and being able to see all of it, or having a restricted view of the same room through different windows. The room is the same, as are the objects in it, and the changes you make to them have the same effect no matter where you are standing when you make the change. The difference is only in how much of the room you can see.

The Pearl makes use of this fact. If you look at the default Colour Wheel, Yellow / Effect and Magenta / Cyan Focus Masks, they each enable all three of these colour Attributes. The reason for this is that many Intelligent Fixtures have Colour Mix systems, and a colour on stage may be a combination of a certain position on a colour wheel, plus different amounts of colour from the Magenta, Cyan and Yellow filters. When you save this as a colour Preset Focus, you don't want just the colour wheel position, or the Cyan setting, but the whole colour you are looking at. Hence, all three Attributes are enabled so that the entire colour is stored or recalled from any of these Attribute Banks.

8.4 Organising your Preset Focuses

Pearl 2000 can store 120 Preset Focuses. Each of these has a number identifying it from 1 to 120, and each Preset Focus can store information for any or all of the Attributes of a Fixture.

The first 30 Preset Focuses can be stored and recalled using the 30 grey Preset **ADD** buttons. These are the most accessible, and are a good place to store the Preset Focuses you are going to use the most.

⇒ *Unless you need a lot of Preset Focuses, we recommended that you try to store different types of Preset Focuses onto different **ADD** buttons.*

This has the advantage that you can then work in the LAMPS Attribute Bank, and recall a colour or a gobo, without having to change Attribute Banks and without recalling unwanted Attributes. This is because in the LAMPS Attribute Bank, the Focus Mask is normally set for all Attributes, so all the information stored in a Preset Focus will be recalled. See section 8.3.4 *Using the Focus Mask.*

eg. Use the first 10 ADD buttons to store Colour Preset Focuses, the next to store Gobo Preset Focuses and the last 10 to store Positional Preset Focuses.

If you are using a Graphics Tablet, you can store and recall Preset Focuses 1 to 60 from there. See section 15.7 *Preset Focuses on the Tablet.*

All of the Preset Focuses are accessible using the FOCUS key with typed – in values. See section 8.6 *Using a Preset Focus.*

8.5 Programming a Preset Focus

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Create the Preset Focus look on stage.

- Press the blue **STORE FOCUS** button on the Program Select Bank.

⇒ *When you press this button, the LEDs on the Attribute Bank indicate the current Focus Mask, and hence the Attributes being stored from the Programmer. If necessary, select a different Attribute Bank to store the Attributes you intend.*

Either :

- To store Preset Focuses 1 – 30, you can press the grey **Preset ADD** button that you wish to store the Preset Focus onto.

Or :

- Enter the number of the Preset Focus you wish to store, from 1 to 120.

- Press **ENTER** to confirm.

The Preset Focus will include all the Fixtures that have Attributes in the Programmer of the same type as the settings on the Focus Mask.

This is a **Record by Channel** type function, so only Attributes that have actually been touched will be in the Programmer.

eg. If you press CLEAR, then change the colours of your Intellabeams and the Pan and Tilt of your Trackspots, if then you record a Positional Preset Focus, it will only contain the Trackspots.

8.6 Using a Preset Focus

To use a preprogrammed Preset Focus :

- Turn the **Key** to **Program** or **Run** in **Take Over Run** mode*. See Section 12.1 Run Modes.*

- Select the **Attribute Bank** of the **Attribute** you wish to recall, or go to LAMPS to recall all the Attributes stored in that Preset Focus.

- Select your Fixtures by pressing blue **Preset SWOP** buttons. *Fixture LED's will light provided that the desk is in Fixtures mode. You can select any number of Fixtures.*

Either :

- To recall Preset Focuses 1 – 30, you can press the grey **Preset ADD** button for that Preset Focus.

Or :

- Press the grey **FOCUS** button. *Screen asks you to enter a Preset Focus number, and reminds you to check that you are recalling the correct Attributes.*

- Enter the number of the Preset Focus you wish to recall, from 1 to 120.

  Press **ENTER** to confirm. *Puts you back in the LIVE PROGRAM menu.*

Or :

- Type in the number of the Preset Focus you wish to recall. *Puts you in the INPUT menu.*

- Press **Softbutton B** [RECALL FOCUS]. *Puts you back in the LIVE PROGRAM menu.*

8.7 Editing a Preset Focus

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Select the appropriate **Attribute Bank.**

- Press the blue **EDIT FOCUS** button on the Program Select Bank.

⇒ *When you press this button, the LEDs on the Attribute Bank indicate the current Focus Mask, and hence the Attributes being recalled into the Programmer. If necessary, select a different Attribute Bank to recall the Attributes you intend.*

- Press the **Preset Focus ADD** button or enter the Preset Focus number and press **ENTER**.

ALL THE FIXTURES IN THAT PRESET FOCUS WILL GO TO THEIR PRESET FOCUS VALUES. THESE VALUES ARE PUT IN THE PROGRAMMER PRIOR TO RE-RECORDING. See Section 1.6 *The Programmer.*

- Make the desired changes to the Preset Focus.

- Press the blue **STORE FOCUS** button on the Program Select bank *Again the Focus Mask is displayed on the LEDs.*

Either :

- To store Preset Focuses 1 – 30, press the same **Preset Focus** button to store the edits

Or :

- Enter the number of the Preset Focus you wish to store, from 1 to 120.

- Press **ENTER** to confirm.

8.8 Deleting a Preset Focus

This method can be used to **DELETE** Preset Focuses 1 – 30 from the grey buttons.

- Turn the **Key** to **Program**. *Puts you in LIVE PROGRAM MODE.*

- Press the blue **DELETE** button on the Program Select bank. *Its LED lights up.*

- Press the **Preset Focus** button **TWICE** to delete it. *Delete LED will go out.*

⇒ *Preset Focuses 1 – 60 can be DELETED from the Graphics Tablet. See section 15.7.3* DELETING a Preset Focus using the Tablet.
Preset Focuses 61 – 120 cannot be DELETED at present, although you could turn all Attributes in all Fixtures OFF to achieve the same thing. (See section 8.13 Switching OFF Attributes in Preset Focuses.) *A DELETE function accessed through the grey FOCUS button is anticipated in a future Software release.*

8.9 Shared Preset Focuses

8.9.1 Storing a Shared Preset Focus

A Shared Preset Focus enables the user to program a particular Preset Focus for one Fixture, which is then copied to all other Fixtures of that type.

This is very useful, because it means that you can use a single Fixture before a show to program Preset Focuses for all Fixtures of that type. It also means that if you add more lights to an existing show, you don't have to waste time programming new Preset Focuses for them.

Any Preset Focus that only has one Fixture Selected when it is stored is automatically a Shared Preset Focus.

All the automatically created Preset Focus loaded while patching are Shared Preset Focuses.

8.9.2 Editing a Shared Preset Focus

As soon as more than one Fixture is Selected while recording Edits into a Shared Preset Focus, those Selected Fixtures revert to ordinary Preset Focuses within that Attribute, while any remaining Fixtures will continue to Share.

A dichotomy arises, however, when only one Fixture is Selected, because you might want this Fixture to record the new Edits uniquely for itself, while the rest of the Fixtures remain Sharing, or you may wish to use the Edits to update the Shared information for all Fixtures.

To store an Edited Preset Focus for one Selected Fixture :

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Select the appropriate **Attribute Bank.**

- Press the blue **EDIT FOCUS** button on the Program Select Bank.

- Press the **Preset Focus ADD** button or enter the Preset Focus number and press **ENTER**.

- Select your Fixture and make the desired changes to the Preset Focus.

- Press the blue **STORE FOCUS** button on the Program Select bank. *Puts you in the EDIT SHARED FOCUS menu.*

Either : to store your changes in that Fixture only

- Press the grey button or type a Preset Focus number as usual to store the Focus.

Or : to Edit the Preset Focus for all Fixtures.

- Press **Softbutton A** [ENABLE SHARED FOCUS] Press the grey button or type a Preset Focus number as usual to store the Focus.

Effectively the desk assumes that if you store the Edited Focus as normal, that you wish to make the Fixture unique.

8.10 The pre-programmed Preset Focuses

When an instrument is patched using a Personality File a number of pre-programmed Shared Preset Focuses can be automatically loaded, by selecting **YES** when the **LOAD PRE-PROGRAMMED FOCUSES** menu is presented prior to patching an instrument.

⇒ *You can only load the Pre-programmed Focuses at this time.*

This Preset focus information is customisable by editing the Personality File. Details on how to do this are contained in the Personality File Technical Manual.

Normally the automatically loaded Preset Focuses are as follows.

Preset Focus buttons 1 to 10   Colours.
Preset Focus buttons 11 to 21   Gobos.
Preset Focus buttons 21 to 29   Positions (see below).

UPSTAGE

26	24	27
22	21	23
28	25	29

DOWNSTAGE

This is a table of Pan and Tilt positions for the default pre-programmed Positional Preset Focuses assuming the Instrument is placed above 21.

Pre programmed Preset Focused can be deleted and edited in the usual way for Shared Preset Focuses. See section 8.9 *Shared Preset Focuses.*

8.11 Replaying a Preset Focus over a time

This is a great feature for busking a show in **Take Over Run** mode. See Section 12.4.2 *TAKEOVER RUN MODE.*

You can recall a Preset Focus live over a given time.

*   Turn the **Key** to **Run**. *Puts you in RUN MODE*.

*   Toggle **Softbutton A** [TOGGLE MODE] until the prompt line displays RUN MODE TAKEOVER.

*   Select the Fixtures you want to use.

*   Select the **Attribute Bank** of the Attribute you wish to recall.

*   **Enter** a time in seconds on the **Keypad.** *Do not press ENTER.*

*   Select the Preset Focus.

This is generally most useful in Take Over Run Mode but may also be convenient whilst programming. This does not work in other Run modes.

In order for this function to work, there must be an available Playback Fader on the current Roller Page.

An available Playback Fader is defined as :

a). Being completely empty

b) Having a Memory recorded on it, but with the Playback Fader at zero

c) Having a Chase recorded on it which is both at zero and set to FADER RELOADS CHASE mode in the Chase Parameters.

⇒ *A Preset Focus recalled with time in this way does NOT sit in the Programmer, but in the playback area. This means that although the Preset Focus is not controllable from a Playback Fader, it can be overridden by activating another Playback Fader containing the same Attributes without pressing CLEAR.*
This means that you can, for example, put a Fixture into yellow cones and execute a two second sweep to the stage. You can then run a Pan and Tilt Chase without Clearing the Programmer, which would lose the yellow cones. This is a very powerful feature allowing preprogrammed Memories and Chases to be integrated with busked effects.

8.12 VIEWING a Preset Focus

To **VIEW** a Preset Focus Program or Run mode :

Either :

- Press the **VIEW** button.

- Press the **ADD** button of a Preset Focus from 1 – 30.

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Preset Focus.

- Press **EXIT** to quit.

Or :

- Press the **VIEW** button.

- Press the **FOCUS** button.

- Type in the number of the Preset Focus you wish to VIEW from 1 to 120.

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Preset Focus displayed on the VGA monitor.

- Press **EXIT** to quit.

8.13 Switching OFF Attributes in Preset Focuses

In the same way that you can switch **OFF** Fixtures and Attributes in a Memory or Chase Step, you can use **OFF** to mask Fixtures and Attributes stored in a Preset Focus, so that they do not get recalled.

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Select the LAMPS **Attribute Bank.**

- Press the blue **EDIT FOCUS** button on the Program Select Bank. *The Focus Mask will be displayed on the Attribute Bank LED's. Lit LED's in the Attribute Bank buttons indicate selected banks. Turn banks on and off by pressing the Attribute Bank Buttons.*

- Press the **Preset Focus** for editing.

ALL THE FIXTURES IN THAT PRESET FOCUS WILL GO TO THEIR PRESET FOCUS VALUES. THESE VALUES ARE PUT IN THE PROGRAMMER PRIOR TO RE-RECORDING. See Section 1.6 *The Programmer.*

- Switch **OFF** all the desired Attributes or Fixtures. (See section 4.8 *The OFF button*)

- Press the blue **STORE FOCUS** button and restore the Preset Focus as normal.

Alternatively you can go through individual Attribute Banks, recalling Preset Focuses and switching Fixtures **OFF**.

8.14 Changing the Focus Mask

You can no longer change the Focus Mask without going into the USER SETTINGS menu. Unless you understand the Focus Mask completely, and are totally confident of the results of changing it, you are advised not to tamper with the default settings.

- Turn the **Key** to **Program**.

- Press **Softbutton B** [USER SETTINGS]. *Puts you in the USER SETTINGS menu.*

- Select the relevant **Attribute Bank**. *Its LED lights up.*

- Press **Softbutton C** [SET FOCUS MASK]. The current Focus Mask is displayed on the LEDs of the Attribute Bank. The Prompt line confirms the Attribute Bank Focus Mask being edited.

- Press the **Attribute Bank** buttons to select or deselect Attributes on the **Focus Mask**. Lit LED's in the Attribute Bank buttons indicate selected banks. Turn banks on and off by pressing the Attribute Bank Buttons.

- Press **ENTER** to confirm the change. *Puts you in the USER SETTINGS menu.*

8.15 Help and hints

Problem : *I edited some Fixtures in a Preset Focus, and now some of the other Fixtures seem to have changed.*
Solution : You forgot to press the **EDIT FOCUS** button before you changed the Preset Focus. You have now accidentally stored the state that your other Fixtures were in when you made the Edits over their original values*.*

Problem : *I stored a Pan and Tilt Preset Focus for all my Fixtures, and it seems to have changed the Colour Preset Focus I previously stored on the same button.*
Solution : You stored the Pan and Tilt Preset Focus from within the LAMPS bank, so all the Attributes in the Focus Mask were enabled, and all the Attributes in the Programmer at that moment were stored.

Problem : *I stored a Preset Focus for all my Fixtures, and it didn't store*
Solution : Select all the Fixtures you wish to store in the Preset Focus. Make sure you touch the **Wheels** while you are in the relevant Attribute Bank to put the current values into the Programmer, or they will not store.

Problem : *I have a complicated show coming up, and no programming time!*
Solution : Use Shared Preset Focuses to save you time on the day.

9. Useful features on the Pearl

9.1 More about the Screen - using VIEW

9.1.1 Resetting the Screen

Pressing the **VIEW** button TWICE resets the Screen.

9.1.2 To PREVIEW a Memory

To see the output of a Memory Program or Run mode :

- Press the **VIEW** button.

- Press the **SWOP** button of the Memory you want to **Preview**. *The Playback Fader does not have to be up.*

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Memory.

- Press **EXIT** to quit.

9.1.3 Previewing Chase Steps

To see the output of a Chase Step in Program or Run mode :

- Press the **VIEW** button.

- Press the **SWOP** button of the Chase you want to **VIEW**. *The Playback Fader can be up or down. Screen 6 (Preview Screen) is automatically displayed.*

    You will **PREVIEW** step 1 of the Chase.

- You can step through the Attribute Banks and see the desk outputs for each Attribute for the **VIEWED** Chase Step on the VGA monitor. You can use the **Left** and **Right Cursor Keys** to step through incremental Chase Steps. *You are VIEWING the Steps independently of any Chase Steps currently being output.*

- Press **EXIT** to quit.   ### 9.1.4 VIEWING a Connected Chase

To see the live output of a Connected Chase in Program or Run mode :

- **Connect** your Chase.

Either :

- Press the **VIEW** button.

- Press the **CONNECT** button. *The Playback Fader can be up or down. Screen 6 (Preview Screen) is automatically displayed.*

    The VGA monitor shows the current output from the Connected Chase.

- You can step through the Attribute Banks and see the Chase outputs for each Attribute for the **VIEWED** Chase Step on the VGA monitor.

- Press **EXIT** to quit.

Or :

- Press the **VIEW** button and type in 5 on the Keypad and ENTER, or use **NEXT SCREEN** to scroll onto Screen 5 (Chase Times).

- Press **EXIT** to quit.

9.1.5 To PREVIEW a Preset Focus

To see the output of a Memory or a Chase in Program or Run mode :

Either :

- Press the **VIEW** button.

- Press the **ADD** button of a Preset Focus from 1 – 30.

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Preset Focus.

- Press **EXIT** to quit.

Or :

- Press the **VIEW** button.

- Press the **FOCUS** button.

- Type in the number of the Preset Focus you wish to VIEW from 1 to 120.

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Preset Focus displayed on the VGA monitor.

- Press **EXIT** to quit.

9.1.6 To PREVIEW a Fixture

To preview a Fixture in Program or Take Over Run mode :

- Press the **VIEW** button.

- Press the **SWOP** button of the Fixture you want to **Preview**, remembering to choose the correct **Page of Fixtures**.

- You are automatically put into the Patch by Handle Screen for that Fixture. See section 9.2.9 *Screen 9 - VIEW PATCH BY HANDLE.*

- Press **EXIT** to quit.

9.1.7 To VIEW the current desk output

- Press the **VIEW** button.

- Press **Softbutton F** [STAGE]. *Puts you in View Screen 1 (Channel Output).*

- You can step through the Attribute Banks and see the desk outputs for each Attribute in the Preset Focus. You can see the outputs from Fixture Pages 1 and 2 by selecting Fixture Page 1 or 2, and see the outputs from Fixture Pages 3 and 4 by selecting Fixture Page 3 or 4.

- Press **EXIT** to quit.

9.2 Description of the various Screens

You can scroll through the various Screens using the **NEXT SCREEN** button or you can use **VIEW** like this :

- Press **VIEW.**

- Enter the **Screen number** on the **Keypad.**

- Press **ENTER.**

9.2.1 Screen 1 - CHANNEL OUTPUT AS A PERCENTAGE

This is the normal Channel Output Screen. It shows the output of each channel in the current Attribute Bank as a percentage. Select different Attribute Banks to examine the Outputs for different Attributes.

9.2.2 Screen 2 - CHANNEL OUTPUT, FULL RESOLUTION

This shows the output of each channel in the range 0 to 255.

All Channels are computed in 16-bit resolution and the appropriate number of bits output on the DMX line as defined by the Personality File for the Fixture in use. Again select different Attribute Banks to examine the Outputs for different Attributes.

9.2.3 Screen 3 - USER PREFERENCES

This Screen allows viewing of the current **User Settings**.

9.2.4 Screen 4 - DMX PATCH

This Screen shows the DMX address followed by the Handle number, and the number of the Fixture. The last column shows the current output for this DMX Channel.

Use the **Up** and **Down Cursor** buttons to move a **single line** up and down. Use the **Left** and **Right Cursor** buttons to move a **whole page** up and down through the DMX addresses.

9.2.5 Screen 5 - CHASE TIMES

This Screen shows the Chase times for the Connected Chase. You can view the Live step times and several following step times.

9.2.6 Screen 6 – PREVIEW

Retains information of the last Memory, Chase Step or Preset Focus you **PREVIEWED**.

9.2.7 Screen 7 - PLAYBACK STATUS

This displays the status of each Playback Channel. This is useful if you are using times on Memories or Chases since you can see them fading in and out. It is also useful if you are using Script Files. See the Section 17 *The Script File System.*

9.2.8 Screen 8 - SCRIPT FILE

See Section 17 *The Script File System* for further details.

9.2.9 Screen 9 - VIEW PATCH BY HANDLE

This Screen is split into two sections.

The **upper section** gives the handle number, Fixture name and DMX address.

The **lower part** of the Screen gives information on how to set the various switched and controls on the Fixture itself.

This is displayed one Fixture at a time and the **Up** and **Down cursor** buttons are used to select the Fixture from the list on the upper part of the Screen.

There are some Fixtures which when patched, may not show up on the lower part of this Screen.

In order for this Screen to work, the Fixture must have an intensity channel patched onto one of the Preset Faders on Attribute Bank 1. Generally this will be the case, however there are some instances when this will not happen.
Some examples are:- A pan and tilt yoke, some colour mix devices which use three Colour Channels but no Dimmer.

⇒ *This Screen has a large processing overhead and should not be viewed during time critical operations, or during a show unless absolutely necessary.*

9.2.10 Screen 10 – ATTRIBUTES AND TABLES

This shows Attribute information for the first of the Selected Fixtures as they would appear on the Graphics Tablet. This is for ease of marking up the Tablet.

This screen also displays the name of any tables available for this Fixture on the Tablet. When a Table is selected from the Tablet, the contents of the Table appear on the right hand side of the Screen. An arrow indicates the current selection from the Table.

9.2.11 Screen 11 - CHASE UNFOLD

When you **UNFOLD** a Chase, Screen 11 is automatically loaded, and it tells you which Playback Faders have got Chase Steps on them, and whether the steps are **Simple** (denoted by '**s**') or **Complex** (denoted by '**c**').

9.2.12 Screen 12 – SCRIPT FILE PARAMETERS

This Screen displays a list of the current Script Files programmed, together with the following parameters : the start time of the Script file, whether it autoexecutes on powering up the Pearl, and whether it runs once, or loops forever.

9.3 Programming Groups

Groups can be quickly created allowing simple selection of a number of Fixtures.

To record a Group :

- Turn the **Key** to **Program.** *Puts you in Live Program Mode menu.*

- Press **Softbutton H** [ML MENU]. *Puts you in the Moving Light menu.*

- **Select** the Fixtures to be Grouped. *Their LED's will light up.*

- Press **Softbutton D** [RECORD GROUP].

- Enter a group Number between 1 and 60 on the **Keypad.**

- Press **ENTER**. *The Group is recorded.*

The order in which you selected Fixtures is recorded in the group. This is the sequence that will be replayed when using **NEXT FIXTURE** on the Graphics Tablet, and used in several of the functions in the Channel and Moving Light menus. See section 4.7 *The Moving Light Menu* and 9.6 *The CHANNEL button.*

You can also record and replay groups from the Graphics Tablet. See Chapter 15 *The Graphics Tablet* for more details.

9.4 Using a Group

Groups are very useful since they make selecting a number of instruments fast and consistent.

To recall a **Group** :

- Type in the Group number on the **Keypad.** *As soon as the first numeric button is pressed the menu will change.*

- Press **Softbutton A** [RECALL GROUP]. *The instruments within that group are* selected.

Only one **Group** can be selected at a time, as selecting a second group deselects the first. A **Group** and additional Fixtures can be selected.

You can also use the Graphics Tablet to recall groups. See Chapter 15 *The Graphics Tablet* for more details.

9.5 Using SNAPSHOT

You have the greatest look on the stage and the director/designer/money man says, "that's it, save that as my next look". No problem any more, use Snapshot.

Snapshot allows you to store the look presently on the stage into a temporary memory for later use. Snapshot checks every fixture on the desk to see if its dimmer channel is at a level above zero. If it is then all the attributes for that fixture are stored. Snapshot can be considered as a Record By Fixture If The Dimmer Is On. The fixture need not be in the programmer and there is no need to decide which memory to record it in, so you can take various Snapshots and look at them later.

9.5.1.1.1 The desk can store up to 50 Snapshots.

9.5.2 To take a Snapshot

From the Program Menu

- Press **Softbutton D** [SNAPSHOT MENU (x/50)]. *Where x is the number of snapshots already recorded.*

The following menu is then presented:

Softbutton A [LOAD A SNAPSHOT]
Softbutton B [DELETE A SNAPSHOT]
Softbutton C [TAKE A SNAPSHOT]

- Press **Softbutton C** [TAKE A SNAPSHOT] *The Snapshot is now recorded.*

- Make a note of the date and time, because Snapshots are time and date stamped so that they can be identified later.

9.5.3 To Load a previously recorded Snapshot into the Programmer.

- Press **Softbutton D** [SNAPSHOT MENU (x/50)]. *Where x is the number of snapshots already recorded.*

- Press **Softbutton A** [LOAD A SNAPSHOT)] . *The VDU now presents a list of recorded Snapshots. An example line is shown below:*

12) 11/Mar/1998 14:12:56

From this line the first number is the Snapshot number then follows the date and time in Hrs, Mins and Secs.

You use the Cursor Buttons to select the Snapshot you require

You may wish to Clear the Programmer so that only the Snapshot is loaded into it, or leave what you have in the Programmer and add the Snapshot to this.

The Snapshot is now loaded into the Programmer which can now be recorded into any memory or chase step as required.

9.5.4 To Delete a Snapshot

- Press **Softbutton D** [SNAPSHOT MENU (x/50)]. *Where x is the number of snapshots already recorded.*

- Press **Softbutton B** [DELETE A SNAPSHOT)]. *The VDU now presents a list of recorded Snapshots. An example line is shown below:*

12) 11/Mar/1998 14:12:56

- Select the Snapshot you wish to delete by using the Cursor.

- Press ENTER. *The Snapshot is deleted.*

9.6 The CHANNEL button

The **CHANNEL** button offers additional ways to Select and control Intelligent Fixtures. It provides a convenient means to Select Fixtures on different Pages without having to keep changing pages.

The use of this button allows different types of Fixtures to be dealt with as individual groups that can then be manipulated. The user can deal with groups of different types of lights in terms of their own numbers instead of having to use Handle numbers.
eg. Fixtures on a show consisting of 4 Intellabeams and 10 Cyberlights can be Selected as Intellabeam 2 or Cyberlight 6 instead of whatever their Handle numbers are.

This is useful on a show where the Fixtures are on more than one **Page of Fixtures**, and the board markings may be getting confusing. The Fixtures take their numbering from their lowest Handle number up, so the Fixture of a particular type with the highest Handle number will be the last number in the group.

⇒ *Pressing **EXIT** does not allow you to quit the Channel menu. The only way to get out of it is to press the **CHANNEL** button again.*

9.6.1 To Select one Fixture

- Turn the **Key** to **Program.**

- Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

The current Fixture type is displayed on the prompt line. This will be one of the instrument types that you have patched. If you want to change this for a different Fixture you must :

- Press **Softbutton B** [Select a new Fixture type]. *Screen shows all Fixture types currently patched.*

- Select the new Fixture you wish to use. *You are automatically returned to the Channel menu with the new Fixture type listed on the prompt line*.

- Type the number of the Fixture you wish to Select. The Fixture with the lowest Handle number is designated as 1, with the highest Handle number designated as the highest numbered member of the group. *Number appears on the prompt line as CHANNEL = XX.*

- Press **ENTER**. *LED on Selected Fixture lights up*.

- Press the **CHANNEL** button again to exit the Channel menu.

9.6.2 To Select a consecutive series of Fixtures

You can Select consecutive Fixtures of a given type using the **THROUGH** button.

- Turn the **Key** to **Program.**

- Press the **CHANNEL** button. *Puts you in the Channel Select Menu*.

- If required, Select a new Fixture type using **Softbutton B**.

- Type the number of the first Fixture you wish to Select. *Number appears on the prompt line as CHANNEL = XX.*

- Press **Softbutton C** [THROUGH]

- Type the number of the last Fixture you wish to Select.

- Press **ENTER**. *LED on Selected Fixtures lights up*.

Press the **CHANNEL** button again to exit the Channel menu.

9.6.3 Using Groups with the CHANNEL button

If you have defined any Groups (see section 9.3 *Programming Groups*), these can also be manipulated using the **CHANNEL** button. The same rules apply to the order in which the Fixtures are deemed to exist in a group.

To Select a Group :

- Turn the **Key** to **Program.**

- Press the **CHANNEL** button. *Puts you in the Channel Select Menu*.

- Press **Softbutton D** [GROUP]. *The prompt line asks you to input the number of the Group you wish to Select*.

- Press **ENTER**. *LED on Selected Fixtures lights up*.

- *Press the **CHANNEL** button again to exit the Channel menu.*

9.6.4 To Select all Fixtures in the Programmer using the CHANNEL button

This feature Selects all Fixtures that are currently in the Programmer. This is useful if you have been modifying different colours, for example, and now want to put all of the lights you have been using into the same gobo.

- Turn the **Key** to **Program.**

- Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

- Press **Softbutton A** [Select All]. *LEDs on all Intelligent Fixtures are lit.*

- Press the **CHANNEL** button again to exit the Channel menu.

⇒ *This selects Intelligent Fixtures only – not Dimmer Channels!!*

9.6.5 Manipulating Selected groups with the CHANNEL menu

Having Selected a series of Fixtures by whatever means, it is possible to Select just the ODD or EVEN members of the Group. At this moment, a Fixture is designated as ODD or EVEN according to the Handle number it occupies, but future Software releases will change this so that ODD or EVEN is determined by the number of the Fixture in a Group, or the order in which individual Fixtures are Selected.

To Select all the ODD Fixtures from the currently Selected Fixtures :

*   Turn the **Key** to **Program.**

*   Select your Fixtures by whatever means you wish.

*   Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

*   Press **Softbutton E** [ODD]. *LEDs on all odd Handle- numbered Fixtures are lit.*

*   Press the **CHANNEL** button again to exit the Channel menu.

To Select all the EVEN Fixtures from the currently Selected Fixtures :

*   Turn the **Key** to **Program.**

*   Select your Fixtures by whatever means you wish.

*   Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

*   Press **Softbutton F** [EVEN]. *LEDs on all odd Handle- numbered Fixtures are lit.*

*   Press the **CHANNEL** button again to exit the Channel menu.

9.6.6 To enter an intensity value from the keypad

You can use the **CHANNEL** menu to type in intensities for Selected Fixtures instead of using the **Preset Faders** or the **Wheels**.

*   Turn the **Key** to **Program.**

*   Select your Fixtures by whatever means you wish.

*   Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

*   Press **Softbutton G** [AT%]. *Screen asks you to enter an intensity value.*

*   Enter a value for the intensity of the Selected channels from 0 to 10, where 0 is 0% and 9 is 90%. To get a value of 100%, press **Softbutton G** [100%] again.

*   Press the **CHANNEL** button again to exit the Channel menu.

9.6.6.1 To adjust a current intensity value by plus or minus 5% :

*   Turn the **Key** to **Program.**

*   Select your Fixtures by whatever means you wish.

*   Press the **CHANNEL** button. *Puts you in the Channel Select Menu.*

*   Press **Softbutton G** [AT%]. *Screen asks you to enter an intensity value.*

*   Press **Softbutton E** [+5%] or **Softbutton F** [-5%] to adjust the intensities of Selected Fixtures.

- Press the **CHANNEL** button again to exit the Channel menu.

9.7 The INCLUDE button

As discussed in Section 4.3, *How HTP and LTP Channels are recorded* LTP Channels output from the Playback area will not record in a new Memory (or Chase Step) because they are not in the Programmer.

To put all the Channels from a Memory or Chase Step into the Programmer to record elsewhere, you can use **INCLUDE.**

The functionality of this button has been enhanced, so that you can now use it at any time to add either the DMX values of whole Memories of Chase Steps into the Programmer, or just parts of them. The button has also moved to the grey buttons over the keypad.

You can now **INCLUDE** a Chase step from an **UNFOLDED** Chase.

A shape in a Memory will automatically be **INCLUDED**.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- If you want to **Include** a particular Chase Step, run the Chase and Stop it on the step you want to **Include**.

  > Otherwise if its Playback Fader is **down,** or the Playback Fader is **up** and the Chase is running, you will Include the last complete step of the Chase that was run.

- Ensure that you have nothing Selected.

- Press the grey **INCLUDE** button.

- Press the **SWOP** button of the **Playback Fader** of the Memory or Chase Step you wish to recall. *The Memory or Chase Step is output from the desk, and loaded into the Programmer.*

  > You can Include more than one Memory or Chase Step by repeating this step as many times as you wish.

- Make any other changes to the look onstage you require, before storing as a Memory or part of a Chase as normal.

9.7.1 Using INCLUDE to selectively recall Fixtures or Attributes

You can also use the **INCLUDE** function to recall chosen Attributes into Selected Fixtures from a Memory or Chase Step.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- If you want to Include Attributes from a particular Chase Step, run the Chase and Stop it on the step you want to **Include**.

  > Otherwise if its Playback Fader is **down,** or the Playback Fader is **up** and the Chase is running, you will Include the last complete step of the Chase that was run.

- Select the Fixtures you want to recall Attributes into. *Their LEDs light up.*

- Select the Attribute(s) you wish to recall using the Attribute Bank. The illuminated LEDs on the Attribute Bank indicate which Attributes will be recalled. *In the LAMPS bank, this will be all Attributes from the Selected Fixtures. In other Banks, the recalled Attributes are defined by the Focus Mask. (See section 8.14* Changing the Focus Mask).

- Press the **SWOP** button of the Playback Fader of the Memory or Chase Step you wish to recall. *The chosen Attributes of the Selected Fixtures from the Memory or Chase Step are output from the desk, and loaded into the Programmer.*

- To recall other Attributes, repeat the process as necessary.

- Make any other changes to the look onstage you require, before storing as a Memory or part of a Chase as normal.

9.8 FAN mode

Pressing the blue **FAN** button on the **Program Select** Bank puts the **Wheels** into **FAN** mode. The LED on the **FAN** button flashes while FAN mode is in operation.

This changes the way the two Wheels control an Attribute for a group of Fixtures. Instead of all Fixtures receiving the same relative change in DMX values, the values output to the Fixtures increase for the first half of the group and decrease for the second half as you roll a **Wheel** clockwise. Also the effect that the **Wheel** has increases from the centre of the group out, so that the effect of moving the **Wheels** has a greater effect the further a Fixture is from the centre of the group, thus creating a fan effect from the centre of the group outwards. This can be applied to any Attribute, not just Pan and Tilt.

The Fixture at the centre of an odd numbered group will not change in value.

⇒ *The order of the group is the order in which the Fixtures were Selected, so interesting effects can be achieved by applying FAN mode to Attributes in a randomly or specially ordered group.*

The **FAN** button replaces the old **RESTORE CHASE OUTPUT** button.

Pressing the **FAN** button a second time restores normal functionality to the Wheels.

⇒ *Make sure you come out of **FAN** mode when you have finished with it, or Fixtures may not behave as you expect later on.*

9.9 Reduction Faders

Reduction Faders allow you to temporarily limit the output of an Intensity Channel. This is useful for turning off a wayward Intelligent Fixture or limiting the flare caused to a camera by a particular device.

Every time an Intensity Fader is patched onto Attribute Bank 1, a Reduction Fader is automatically patched onto Attribute Bank 12.

To use a Reduction Fader :

- Put the Channel you want Reduced up at FULL.

- Go to the **REDUCE FIXTURE INTENSITY** Bank. *All Preset Faders now operate as Reduction Faders.*

- Match the output level with the Intensity Channel by bringing the Reduction Fader to Full also. *If it is already at Full, bring it down to zero, the back up*.

- Bring the Reduction Fader down to limit the output to the desired level.

9.10 Programming in BLIND mode

9.10.1 Entering Blind Mode

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **Softbutton F** [PRESS FOR BLIND MODE]. *Puts you in BLIND PROGRAM MODE menu.*

When in **Blind Mode** the Programmer and the Preset Faders are disconnected from the output so you can build or edit Memories and Chases without your programming being seen on stage.

Programming is identical to Live Program Mode except your changes cannot be seen on the output.

⇒ *When you enter Blind Mode, Channels already in the Programmer stay there. It may therefore be desirable to CLEAR the programmer on first entering Blind Mode, or Channels in the Programmer may be included in your programming.*

9.10.2 Exiting Blind Mode

- Again press **Softbutton F** [PRESS FOR LIVE MODE] *Puts you in LIVE PROGRAM MODE menu.*

When you exit Blind Mode Channels in the Programmer are cleared and the programmer is reloaded with any Channels that were in the programmer before Blind Mode was selected.

This means that entering and exiting Blind Mode does not affect what is seen on stage, and you can Blind Program in the middle of a show if necessary.

⇒ *To keep the Programmer contents before you return to Live mode you should record a Memory, which you can later INCLUDE. See Section 9.7* The INCLUDE button.

9.10.3 To alter a Memory without changing the look on stage

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **Softbutton F** [PRESS FOR BLIND MODE]. *Puts you in BLIND PROGRAM MODE menu.*

- **Include** the Memory to be altered.(See section 9.7 *The INCLUDE button)*

- **Edit** the Memory as required.

- **Save** the Memory in the usual way.

- Take down the Preset Faders and press **CLEAR**.

- Again press **Softbutton F** [PRESS FOR LIVE MODE]. *Puts you in LIVE PROGRAM MODE menu.*

If the Memory Playback Fader is up then take it down and put it back up to load the new Memory.

9.11 Sound to Light

Connect either a microphone or a line level signal into the sound to light input. Inside the desk there is a link allowing you to configure the desk for Microphone or Line.

9.11.1 Setting the sound to light input level link

You can select one of three input settings for the sound to light. These are **Normal Microphone**, **Low Level Line** and **Line level**.

To set this you must open up the desk and move **Link 901**.

Before you open the desk ensure the mains is disconnected.

Link 901 is near the audio input connector on the main (largest) circuit board. When this link is nearest the edge of the circuit board the input is set to **microphone**, in the middle position the input is set for **low level line** input and when nearest the middle of the circuit board it is set for **line level** input.

9.11.2 Programming for Sound to Light

- Turn the **Key** to **Program.**

- Program three Chases onto Playback Channels **1**, **2** and **3**.

These will respond to :
Bass signals (Playback **1**)
Mid signals (Playback **2**)
Treble signals (Playback **3**).

Each Chase should initially be set to have all **LINKS OFF**.
See Section 7.12.3 *LINKING a Chase.*

- Now turn the **Key** to **Run**.

9.11.3 Running the Sound to Light function

- Having programmed the three Chases as described in the previous section, connect up the audio source and press **Softbutton E** [ENABLE Sound to Light].

- Put up Playback Faders 1 to 3. Adjust the Sound to Light level control for the desired effect.

Each time a BASS, MID or TREBLE signal appears the appropriate Chase will step on.

⇒ *Some steps can be Linked on the Chases to provide different effects. The Linked steps will run on and the Unlinked steps will be triggered by the music. You can create Complex steps to further enhance the music if required. See Sections 7.12.3* LINKING a Chase *and 7.9.2* Individual Step Times Chases.

9.11.4 Stopping the sound to Light function

- Press **Softbutton F** [DISABLE Sound to Light].

9.12 Help and Hints

Problem : *The Wheels are behaving strangely.*
Solution : You are still in FAN mode.

Problem : *I want to copy some effects from a Memory into a new cue.*
Solution : Use **Include** to copy parts or all of the Memory into the Programmer, where it can be incorporated into new Memories and Chase Steps*.*

10. The Shape Generator

The Shape Generator allows easy access to various preprogrammed Shapes and Effects.

10.1 Types of Shapes

There are different categories of Shapes.

10.1.1 Cyclic and Random Shapes

Shapes can be **Cyclic** or **Random**.
A **Cyclic Shape** involves a repeating series of values applied to an Attribute. The **Shape Cycle** is the pattern that is repeated to make the Shape.
A **Random Shape** does not repeat a pattern, but may, however, be restricted to a certain range of values to create its effect. The reason for this is that you may want a movement Shape that randomly moves the beams around the Stage area. In this case the Shape values must be restricted to those which keep the beams on the stage.

10.1.2 Relative and Absolute Shapes

Shapes can be **Relative** or **Absolute**.
A **Relative Shape** is applied in relation to the current value of an Attribute. A Circle is an example of this, because it uses the current Pan and Tilt values of an Attribute to define where the centre of the circle will be.
An **Absolute Shape** is applied regardless of the current state of the Attribute. Most Dimmer and Iris functions behave in this manner.

10.2 To apply a Shape

All Shapes are applied in the same way.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **Softbutton G** [SHAPE GENERATOR]. *Puts you in SHAPE GENERATOR menu.*

- Select the Fixtures you wish to apply the Shape to. *Their LEDs light up.*

- Press **Softbutton A** [PLAYBACK A SHAPE]. *Softbuttons display different Shapes available.*

- Select the required Shape using the **Softbuttons**. **Softbuttons F** and **G** allow you to move forwards and backwards on the different pages of Shapes. *The Shape is put into the Programmer and applied to the Selected Fixtures*.

10.3 EDITING Shapes

You can customise different aspects of the **Shapes**. You can adjust the **SIZE** (amplitude), **SPEED** (frequency) or **SPREAD** (phasing) of any Shape.

The **SIZE** of a Shape determines the amplitude of the function. This will control how big a Circle is, how far a Saw is going to move or how saturated a Rainbow is going to be.

The **SPEED** is obvious.

The **SPREAD** allows different Fixtures in the same Shape to operate out of phase with each other. That is, they are all doing the same function, but you can allow them to perform the Shape out of step with each other.

The **Coarse Spread** defines how many different positions a Fixture can be in during one repetition of the Shape Cycle. If the Fine Spread is set to zero, the Fixtures will always be evenly spaced within the Shape Cycle.
Eg. If the **Coarse Spread** is 2, there are two different points in the Cycle that a Fixture can be at. Fixture 1 leads, and Fixture 2 trails half a Cycle behind it. Fixtures 3, 5, 7 etc will have the same position as Fixture 1; Fixtures 4, 6 etc will have the same values as Fixture 2.
If the **Coarse Spread** is 4, Fixture 1 will lead the Shape, and Fixtures 2 to 4 will all trail at different points behind it in the Shape Cycle, equally spaced. Fixture 5 will be at the same point as Fixture 1, Fixture 6 will be at the same point as Fixture 2, and so on.

It is obviously not possible to have a **Coarse Spread** value greater than the number of Fixtures in the Shape, because when the two figures are the same, all the Fixtures are at different points in the Cycle, evenly distributed through it. This is called an **EVEN** Spread.

The **Fine Spread** value is in degrees, and is an offset which allows the distribution around the Shape Cycle to become uneven. Using the Fine Spread enables you to vary this offset. High values cause the Fixtures to become bunched close together on the Shape Cycle.

10.3.1 To EDIT a Shape

In order to Edit a Shape, it must be in the Programmer.
Once you press CLEAR, a Shape is lost, unless you have stored it in a Memory. (See Section 10.4 *Recording a Shape in a Memory*).

If you have applied different Shapes to the same set of Attributes of the same Fixtures, you will only find the latest Shape in the Programmer. But if you have applied, for example, a Circle move to Selected Fixtures, then a Tilt Saw move onto the same Selected Fixtures, both Shapes will be in the Programmer. This is because the Tilt Saw only controls the Tilt Attribute – the Pan is still controlled by the Circle.
Similarly the same Circle applied separately to two different groups of Fixtures will appear as two different Shapes.

All the Edits made to a Shape apply to all the Fixtures in that Shape.

You can use the LOCATE FIXTURE function from within the Shape Generator. See section 4.7.1 *LOCATE FIXTURE.*

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press **Softbutton G** [SHAPE GENERATOR]. *Puts you in SHAPE GENERATOR menu.*

- Press **Softbutton B** [EDIT A SHAPE]. *Softbuttons display all the different Shapes currently in the Programmer.*

- Select the required Shape for Editing using the **Softbuttons**. **Softbuttons F** and **G** allow you to move forwards and backwards on the different pages of Shapes.

- You can change the **Fine** and **Coarse Spread** of the Shape by pressing **Softbutton C** [Set WHEELS to SPREAD….]. **Wheel A** now controls the Fine Spread value and **Wheel B** now controls the **Coarse Spread** value. See Section 10.3 *EDITING Shapes* for definitions of how these functions work.

- You can change the **SIZE** or **SPEED** of the Shape by pressing **Softbutton D** [Set WHEELS…]. **Wheel A** now controls the **SIZE** value and **Wheel B** now controls the **SPEED** value. See Section 10.3 *EDITING Shapes* for definitions of how these functions work.

- You can toggle the direction of the Shape by pressing **Softbutton F** [CHANGE DIRECTION].

Note that all Edits to a Shape affect all Fixtures to which that Shape has been applied. This means that if you want to apply a Circle Shape to your rig, but have different Fixtures rotating in different directions or at different speeds, you must make a new Shape for each variation, and apply them to the relevant Fixtures.

⇒ *You can simultaneously Edit different Shapes, so you can make two Circle Shapes, for example, with all the same characteristics, but which make the circle in opposite directions.*

10.4 Recording a Shape in a Memory

You can only record Shapes into Memories. To record a Memory which includes a Shape :

- Apply and Edit your Shapes as above. Remember that you can use more than one Shape at a time.

- Press the blue **MEMORY** button on the Program Select bank. *Its LED will light up. The LED of the Memory you are editing will not be lit as it already has something programmed on it.*

- Press the **SWOP** button of the Memory Playback Channel you were editing. *The Screen will ask you if you want to record the Shape into the Memory.*

- Press **ENTER** to confirm that you want to store the Shape.

    For those Users who press CLEAR automatically as soon as they press the SWOP button to store a Memory, don't worry. The Memory has already been snapshotted from the Programmer, so pressing CLEAR won't affect it. As long as you press ENTER afterwards, it will be stored.

- Press **CLEAR** to clear the Programmer. (See 1.6 *The Programmer* for more details.)

⇒ ***Warning***. *When you edit a memory, which contained shapes, and select to record new shapes, the original shapes will be deleted. To overcome this you should record the memory without shapes, then include this in the Programmer without pressing clear. This will have loaded into the programmer the original shapes, and you will still have your new shapes. Now re record the memory and Shapes. If your new shapes are modifications of the existing shapes and new shapes you should save the programmer by recording it into a blank memory. Now Include your original memory, then the newly saved memory and save back into the original memory!*

⇒ *If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory. If the Playback Fader is not at zero, you must lower it to zero before you raise it again to recall the Memory.*

10.5 Shapes and Memory Modes

If you store a Shape a **Mode 0** Memory, the Shape will begin to execute as soon as the Memory Playback Fader reaches the **Trigger Point**.

If you make a **Mode 1** or **Mode 2** Memory, the **Shape Size** will follow the **Playback Fader** as it is raised or lowered, so you can fade the Shape in and out.

See section 6.4 *Memory Modes* for further details.

10.6 Editing a Shape stored in a Memory

As you can only Edit a Shape when it is in the Programmer, once you press CLEAR, a Shape is lost. As with all other Attributes, replaying a Shape does not put it into the Programmer, so if we want to Edit the Shape once it is stored, it is necessary to use **INCLUDE**.

10.6.1 Using INCLUDE to Edit a Shape

You can use **INCLUDE** to recall a Shape from a Memory. This will recall all Shapes stored in the Memory and put them into the Programmer. You can then Select one or more Shape to Edit as usual. (See section 9.7 *The INCLUDE button*).

⇒ *INCLUDING a Memory containing one or more Shapes will always recall all the Shapes and all the Fixtures to which they are applied. You cannot Select Fixtures or individual Attributes to Edit from the Shapes.*

10.7 Stop Shapes button

Softbutton G in the Shape Generator menu [STOP SHAPES FROM MEM & CHASES] temporarily dumps all the Shapes currently being output from the Playback Faders. It was originally put there as a debugging tool, but never got removed. If having pressed it, you wish to restore your Shapes, you must lower and raise the relevant Playback Faders of the Memories containing Shapes.

10.8 Viewing active Shapes

It will often be useful to find out what shapes are actually running. You can do this as follows:

- Press **VIEW**.

- Press **Softbutton E** [SHAPES]. *The VDU now displays the active shapes. The VDU continues to display active shapes until you use VIEW again to change from this screen.*

10.9 Help and Hints

10.9.1 Advanced Shape Programming using OFF

Normally, when you store a Memory containing a Shape, you are storing two things. You are storing a base value for certain Attributes, for example a Pan and Tilt value of 50%, or a Positional Preset Focus on a singer, and you are storing a function which will be applied to that base value. In the case of a circle, you are defining a circular movement, which will take that base position as the centre of the circle.
This means that whenever you recall this Memory, your Fixtures will move in a circle in the same area of the stage.

It is possible, however, to store just the characteristics of a Shape, without storing any particular base values to which that Shape will be applied. In this case, the Shape will be applied to the existing values of the Attribute. Our Circle will commence, taking as its centre the current position of the Fixtures to which it is applied.

This is achieved by storing the Memory in the usual way, but turning **OFF** either all or some of the Attributes of the Fixture that the Shape will be applied to, or the whole of the Fixture, depending on the effect you want to achieve. The Shape will be de-referenced from all the Attributes switched **OFF**. (See Section 4.8 *The OFF button*).

11. Tracking Moving Lights

11.1 Using the Moving Light tracking system

The Moving Light tracking system allows you use a number of Moving Lights in 'follow spot' mode.

When the Tracking is active, the desk computes the Pan and Tilt positions for each Selected Fixture so that they all point to the same point on the stage at all times.

11.2 Training Moving Lights for Tracking

Before Moving Lights can be used in Tracking mode the desk must be trained so its knows where each Fixture is located.

⇒ *If you try to use the desk in Tracking mode and it has not been Trained, the Stage area of the Graphics Tablet will not do anything.*

11.2.1 Marking out the stage

In order to train fixtures to use the Tracking System the four corners of a square must be marked on the stage floor. Each fixture must be able to point at each corner.

Ideally the square should be centre stage and with side lengths of about three quarters of the depth of the stage.

⇒ *The square must have sides of equal length and corners of 90 degrees.*

11.2.2 Defining the stage

- Turn the **Key** to **Program.** *Puts you in Live Program Mode.*

- Press **Softbutton H** [ML MENU].

- Press **Softbutton E** DEFINE THE STAGE]. *Puts you in the DEFINE THE STAGE menu.*

- **Softbuttons A - D** are used to record each of the points of the square. Move all the Fixtures to the **top left corner** of the square (looking from the audience to the stage), then press **Softbutton A** to record the values.

- Do the same for each corner, pressing **Softbuttons B to D** in turn to record the appropriate Fixture positions.

- Press **Softbutton F** [RECALL] followed by any of the stage positions on **Softbuttons A to D** if you want to check them.

- Press **EXIT** to leave the RECALL function. *Puts you back in the DEFINE THE STAGE menu.*

- Press **ENTER** to store or **EXIT** to abandon. *Either option puts you back in Live Program Mode.*

The desk will take about 10 seconds to calculate each Fixture location. A countdown is displayed on the Screen.

⇒ ***Important notes regarding training:-***
The PAN value must be different for each of the corners, as must be the TILT value. The difference need only be 1 count.

Example of how to place moving head fixtures
with relation to the training square.
Note that the limit stop on the pan movement is
set so it is away from the square.

up stage

training square

Cable
Direction of pan
movement showing
where the limit stop
must be placed
Fixture
Bar
Pan limit stop position

down stage

Defining the stage with moving head fixtures
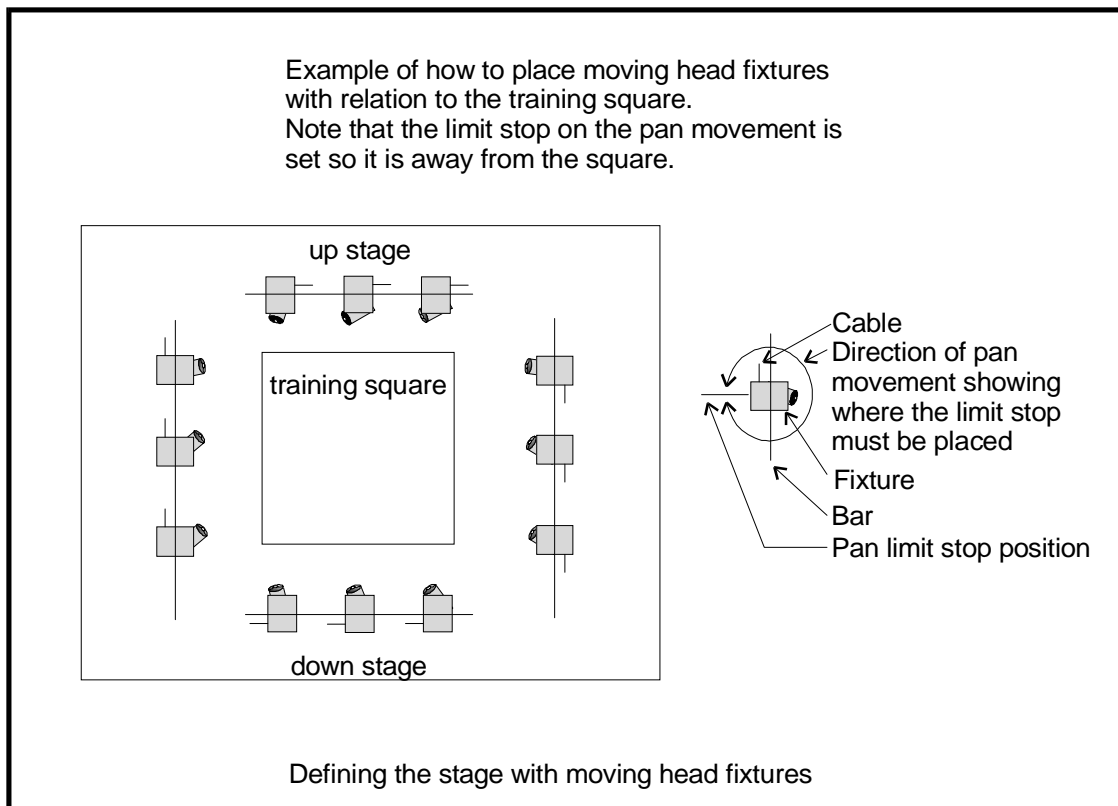
⇒ *If you are using moving head Fixtures you should follow the following guidelines on positioning and setting up:*

• *Align fixtures as shown in the diagram above.*

• *When hanging fixtures ensure the pan limit faces away from the training square.*

• *When training make sure the tilt level is below 50%.*

11.3 Using Tracking without a Graphics Tablet

Once you have trained the desk, you can Track the Fixtures. This is best done using a Graphics Tablet (See Section 14.10 *Using tracking on the Tablet.*), but it is possible from the desk.

• Turn the **Key** to **Program.** *Puts you in Live Program Mode.*

• Press **Softbutton H** [ML MENU].

• Toggle **Softbutton F** [TRACKING ON / OFF] so that Tracking ON is selected.

• Select the Fixtures to Track. **Wheel A** now controls their movement upstage / downstage relative to area you have defined, and **Wheel B** controls their movement stage left / stage right.

11.4 Using Align Fixtures in Tracking mode

Using Align Fixtures with Tracking on will align all Fixtures so that instead of copying the same DMX values from the first Selected Fixture, they all point at the same place on the stage as the first Selected Fixture instead.

11.5 In order to use 4D Track you must have a Graphics Tablet

This is available from your friendly local Avolites distributor as the catchily named Part Number 1221-0190.

11.6 Help and Hints

Problem : *Desk locks up when trying to train instruments for tracking.*
Solution 1 : You may be using old Personality Files which do not have the MIRROR settings in them. Use new version personality files. If desperate add the line `MIRROR 1 120 180` to the personality file. This will probably work reasonably well.
Solution 2 : Possibly some instruments have not been trained but are selected.

12. The USER SETTINGS MENU

The **USER SETTINGS Menu** allows you configure certain features of the desk.

- Turn the **Key** to **Program.** *Puts you in Live Program Mode menu.*

- Press **Softbutton B** [USER SETTINGS]. *Puts you in the User Settings Menu.*

Use the **Up** and **Down Cursor Keys** to move up and down the Menu.

Use the **Left** and **Right Cursor Keys** to toggle menu options.

12.1 Setting 1. CHASE PARAMETERS

Does nothing. This function is transferred to **Softbutton A** in the Live Program Mode menu.

12.2 Setting 2. FADER OFF AT XX

This setting sets the level at which the Playback Fader stops a sequence running.

This value must be lower than the MEMORY FADER ON value. (See below.)

12.3 Setting 3. FADER ON AT XX

This setting sets the level of the **Trigger Point** at which LTP functions are activated on the Playback Channels. it also sets the level at which Chases start to run.

This value must be lower than the MEMORY FADER OFF value. (See above.)

12.4 Setting 4. Run Modes

The available Run Modes are :

12.4.1 NORMAL RUN MODE

12.4.2 TAKEOVER RUN MODE

12.4.3 TWO PRESET MODE

All these Modes are fully discussed in Chapter 13 *Running your show.*

12.5 Setting 5. Record Modes

The available Record Modes are :

12.5.1 Record by INSTRUMENT

12.5.2 Record by CHANNEL

All these Modes are fully discussed in Chapter 6.1 *Recording Modes.*

12.6   Setting 6. Not used

12.7   Setting 7. Not Used

12.8   Setting 8. TC CHECK ENABLE / DISABLE

This setting displays the current status of the Timecode Checking operation. See section 17.10 *Timecode Checking*.

12.9   Setting 9. AUTOCONNECT

Enabling the **Chase Autoconnect** means that the most recently replayed Chase will automatically be Connected to the Wheel(s).

As you change Pages and Facets on the Roller, the most recently Connected Chase will Autoconnect.

Use this Mode for fast access to Chases as they are replayed.

12.10   Setting 10. Remote Connected / G - Tablet

This mode configures the Serial Port on the back of the desk for different input devices. Select the appropriate mode for running a Stage Remote or Graphics Tablet. See Chapter 15 *The Graphics Tablet* and Chapter 15 *The Stage Remote.*

⇒ *If a connected device does not appear to be working correctly, toggling the settings on this User Setting until the correct setting is reselected may help.*

12.11   Setting 11. Not used

12.12   Setting 12. Not used

12.13   Setting 13. SPEED IN SECONDS / BPM

This allows you to decide whether the Chase speeds are displayed in **Seconds** or **Beats Per Minute.**

12.14   Setting 14. FRAME + (X) mcS

This User Setting allows the DMX transmission speed to be slowed down because certain Dimmers and Fixtures cannot respond to full speed DMX

This slightly diminishes the performance of the desk, but will avoid low specification devices missing DMX instructions. The larger the value of X, the slower the desk response will be.

The **Left Cursor key** slows it down.

The **Right Cursor Key** speeds it up again.

12.15   Setting 15 - MIDI Disabled / Master / Slave

Toggling the settings here either disallow incoming MIDI note on / note off information, or allow it and set the desk to Master or Slave. In Master, the desk broadcasts note on / note off information. In Slave, it responds to it.

You can use this feature to control one Pearl or Sapphire with another. See *Appendix 6. MIDI implementation details.*

12.16 Setting 16 - MIDI Channel = (X)

This sets the MIDI Channel number that the desk will respond to. The **Left** and **Right Arrows** allow you to scroll through MIDI Channel numbers from 1 - 16.

12.17 Setting 17 - XX bit wheel ctrl

Most Fixtures with 16 – bit Pan and Tilt actually only use 12 or 13 bits. This function allows the Wheels to generate only the number of bits that the Fixtures require, making the Pan and Tilt controls more responsive. Use **Left** and **Right Cursor Keys** to increase or decrease the number of bits indicated.

12.18 Setting 18 – DMX Chans = XXX

If you are not using the full number of DMX Channels that your Pearl is capable of, you can speed up the processing rate of the desk by limiting the number of DMX Channels it broadcasts. You can set this function for any value from 48 to 512, indicating the highest DMX Channel you are using on any output.

12.19 Use 1.4Mb disks

This setting allows you to toggle between 720k and 1.4Mb disks. Display shows disk size in current use. The setting is updated by the desk itself if it recognises a disk other than the current setting.

12.20 USER SETTINGS on Softbuttons

There are also some functions on the **Softbuttons** of the User Settings menu.

12.20.1 Softbutton A - FIXTURES OR MIMICS

Toggling this setting determines whether the LED's on the Preset **SWOP** Channels are used to indicate Channel levels or whether Intelligent Fixtures are Selected.

12.20.2 Softbutton B - VALID RANGE

See Chapter *17 The Script File System.*

Pressing this **Softbutton** allows you to set a range of values for valid incoming Timecode. Timecode is not within the values will be rejected and the system will use the Internal Timer to maintain a seamless flow of Timecode until the incoming Timecode falls back within the valid range.

To enter the range of values :

* Enter the lowest value on the **Keypad.**

* Press **Softbutton A** [MINIMUM TC].

* Enter the highest value on the **Keypad.**

* Press **Softbutton B** [MAXIMUM TC].

* Press **EXIT** to quit.

12.20.3 Softbutton C – SET FOCUS MASK

Allows access to the Focus Mask. See section 8.14 *Changing the Focus Mask.*

12.21 Helps and Hints

Problem : *The LED mimic doesn't show the level of the Channel.*
Solution : Toggle the FIXTURES OR MIMICS setting.

13. Running your show

13.1 Run Modes

Turning the **Key** to **Run** puts the desk into **Run Mode**. This disables all the programming features of the desk, and allows only Playback functions to operate.

The **Key** can be removed to lock the desk in this Mode.

There are three different Run Modes that you can use for running a show. These are :

Normal Mode
Take Over Mode
Two Preset Mode.

To change Modes, you need to set User Setting 4. (See section 12.4 *Setting 4. Run Modes*). Alternatively, you can toggle between Normal and Take Over Run modes using **Softbutton A** [TOGGLE MODE] with the Key in the **Run** position.

In all of these Modes, operation is basically the same. Raising a Playback Fader will activate the Memory or Chase recorded on it and the LED will light up proportionally to the level. If you change Roller Facets or Pages with a Playback Fader up, the LED will flash.

You can **VIEW** any Screen from all Run modes. See Section 9.1 *More about the Screen - using VIEW.*

13.1.1 Normal Run mode

⟹ *This Mode has the fastest response from the ADD and SWOP buttons.*

In **Normal Run** or **Wide** mode when you switch the **Key** from **Program** to **Run**, the Programmer is cleared **and you no longer have access to any LTP Channels.**

This mode still has access to HTP Channels however.

Each Attribute Bank can control up to 60 HTP Channels on the **Preset Faders**. The level at which they are output is controlled by **Preset Master A.**

Channels 1 - 30 also each have a **Preset SWOP** and a **Preset ADD** button associated with them.

The **Preset SWOP** function works to Solo a Preset Fader, killing all other Channels.
The **Preset ADD** button adds the Channel to the output of the desk.

In this Mode, the level to which Channels are put onto the output by the **ADD** and **SWOP** buttons is controlled by the **ADD** and **SWOP Master Faders**.

Playback Fader levels are controlled by the **Memory Master Fader B.**

See Section 13.3 *The ADD and SWOP buttons in different Run Modes* for **Playback ADD** and **SWOP** button functions. The **LED's** on the **Playback SWOP** buttons follow the **Playback Fader** Level.

Overall levels are governed by the **Grand Master**.

13.1.2 Take Over Run mode

When you switch from **Program** to **Take Over Run** mode, the Programmer does **not** clear and you have access to **all** HTP and LTP Channels. You can use Wheels or Preset Faders to control Attributes exactly like **Program** mode. The only difference is that HTP Preset Channels are under the control of **Preset Master A.**

The **Preset ADD** and **Preset SWOP** buttons have the same functionality as they do in **Program** mode, so you can still Select lamps with the **SWOP** buttons and apply Preset Focuses from the **ADD** buttons.

Use **CLEAR** to clear the Programmer as normal.

⇒ *In Take Over Run mode you can recall Preset Focuses over a given time by selecting Fixtures, typing a time on the Keypad and then selecting the Preset Focus button. (Do not press ENTER after keying in the time). This is a very useful feature when 'busking' a show.*

Playback Fader levels work normally and are controlled by the **Memory Master Fader B.**

See Section 13.3 *The ADD and SWOP buttons in different Run Modes* for **Playback ADD** and **SWOP** button functions. The **LED's** on the **Playback SWOP** buttons follow the Playback Fader Level.

Playback SWOP buttons do not work at all.

> You should note however that the response time of the Playback ADD buttons is slower than the Normal Run Mode response time. (The average time for these buttons in Normal Run Mode is 85mS and in Take Over Run Mode is 185 mS).

Overall levels are governed by the **Grand Master**.

13.2 Running in Two Preset Mode

In **Two Preset** mode when you switch the **Key** from **Program** to **Run**, the Programmer is cleared **and you no longer have access to any LTP Channels.**

This mode still has access to HTP Channels however.

In this mode you have access to Channels 1 to 30 on **both** sets of Preset Faders.

Attribute Bank A is controlled by the **Preset Master Fader A.**
Attribute Bank B is controlled by the **Memory Master Fader B**.

There is therefore no Memory Master when running in Two Preset mode.

Each Preset Channel has an **ADD** and a **SWOP** button associated with it.

The **Preset SWOP** function works to SOLO a Preset Fader, killing all other Channels.
The **Preset ADD** button adds the Channel to the output of the desk.

In this Mode, the level to which Channels are put onto the output by the **ADD** and **SWOP** buttons is controlled by the **ADD** and **SWOP Master Faders.**

In Two Preset mode, the **Playback Area** behaves the same as Normal Run Mode, and Memories and Chases programmed using Dimmers or Fixtures on Preset Channels 31 - 60 will run as normal, even though these Channels are not available on the Preset Faders.

See Section 13.3 *The ADD and SWOP buttons in different Run Modes* for **Playback ADD** and **SWOP** button functions. The **LED's** on the **Playback SWOP** buttons follow the Playback Fader Level.

When you turn the Key back to **Program,** the Preset Faders work in **Wide** mode again.

Overall levels are governed by the **Grand Master**.

⇒ *If you wish to record a scene set up in **Run** mode, make sure the scene is created on Attribute Bank A.*

13.3 The ADD and SWOP buttons in different Run Modes

This is a Table showing how the SWOP and ADD buttons work in the different run modes.

Run Mode	Preset		Playback	
	Preset ADD	**Preset SWOP**	**Playback ADD**	**Playback SWOP**
Normal Run	Adds that channel onto the output	Solos that channel onto the output	See Appendix 5. Functions of the ADD button in Run modes	Solos the Memory or Chase onto the output.
Take Over Run	As in **Program mode**, allowing selection of Preset Focuses etc.	As in **Program mode** allowing selection of instruments.	As **normal run**, but the response time of these buttons will be slower.	**Disabled**
Two Preset	As **normal run**	As **normal run**	As **normal run**	As **normal run**

13.3.1 Changing Run Modes

You can change Run Modes two different ways.

Either :

- Turn the **Key** to **Program**.

- Press **Softbutton B** [USER SETTINGS].

- Use the **Up** and **Down Cursor Keys** to go down to Setting 4 and **the Left and Right Cursor Keys** to cycle the Run Modes.

- Turn the **Key** to **Run.**

Or

- Turn the **Key** to **Run**.

- Press **Softbutton A** to toggle Run Modes. *The Mode may not toggle through all three modes depending on what is selected in the USER SETTINGS.*

The mode in use is shown on the Screen prompt line.

13.4 Help and Hints

Problem : *You cannot control LTP Channels in* **Run** *mode.*
Solution : Change to **Take Over Run** mode.

Problem : *My ADD and SWOP buttons seem very slow.*
Solution : Use **Normal Run** Mode.

Problem : *My ADD and SWOP buttons don't control my Intelligent Fixtures.*
Solution : Use **Take Over Run** Mode.

14. Disk functions and software

14.1 The Show Disk system

The **DISK** System allows you to **Save** and **Load** a show, **Format** a disk, and **Verify** that a saved disk matches the show loaded in the desk.

You can use either 720K Double sided, Double density or 1.44Mb High Density disks formatted for a PC. We suggest 3M preformatted 1.44Mb disks, as the desk can now handle more DMX Channels and show files are becoming larger. More and more shows will no longer fit onto the smaller 720k disks. As the desk currently cannot format these high density disks, it is essential that they are preformatted. If you do end up with show which is too large for a disk, however, the desk will save it across as many disks as necessary, prompting you to change disks as required.

Don't try to format a High Density disk as a 720k disk. This will lead to problems!

Accessing the Disk System

The **Disk System** is accessed as follows :

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

The DISK Options menu looks like this :

> **Softbutton A** [LOAD SHOW FROM DISK]
> **Softbutton B** [SAVE SHOW TO DISK]
> **Softbutton C**
> **Softbutton D**
> **Softbutton E** [FORMAT OPTIONS]
> **Softbutton F** [CATALOGUE]
> **Softbutton G** [LOAD USER CURVE]

14.1.1 Formatting a disk

Before you can Save a Show, you will need a **Formatted** disk. If you do not have one, the desk can **Format** a 720k disk for you. At present it cannot format High Density disks, but this will be possible in future software releases.

WHEN YOU FORMAT A DISK, ANY DATA ON IT WILL BE LOST!!

- Place the Disk to be **Formatted** into the disk drive.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

- Press **Softbutton E** [FORMAT OPTIONS].

- **Either** press **Softbutton B** [FORMAT A PC DISK].

  > Formatting now starts and takes about 2 minutes. Initially the prompt line will indicate the percentage of formatting done, then the formatting is Verified.

- **Or** press **Softbutton A** [FORMAT A PC DISK THEN SAVE SHOW].

The disk is Formatted and Verified as above, then the Show is automatically Saved.

14.1.2 Saving your show to disk

When the **Save Show** function is used all data for a show is saved including the Patch.

- Place the **Show Disk** into the disk drive.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

- Press **Softbutton B** [SAVE SHOW TO DISK].

- If required, you can enter a show name onto the disk using the Preset **ADD** and **SWOP** buttons. The VGA Screen shows you how to do this.

- Press **ENTER**.

    Two files are now saved onto the disk, these are AVO.SYS and MEMPOOL.SYS. The first of these contains the various set-up parameters required for the desk. This file does not change length. The second file contains the data for your show. As you program more memories, Chases etc. this file becomes larger.

- When the **Save** is successfully completed, this message is displayed : *All files successfully saved. Press EXIT.*

- Press **EXIT**

⇒ *If you do not get this message, you may have a damaged disk. Try Saving to another disk.*

Whenever you **Save** the show everything is saved. There is no need to save or load the Patch separately. The time and date of the **Save** is recorded onto the disk.

14.1.3 Loading a show from disk

- Place the **Show Disk** into the disk drive.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

- Press **Softbutton A** [LOAD SHOW FROM DISK]. *The disk is read, and the VDU displays the show name if present.*

- Press **ENTER** to confirm that you want to **Load** a show or **EXIT** to abandon. *The desk now starts reading the show files.*

- When the files have been read you are prompted to press **EXIT** to restart the desk.
  If you are not given this message the load has not been successful.

14.1.4 Setting the internal clock

The time and date of a Save are recorded onto all disks. The internal clock is used as the source of this information. The current settings are displayed in the upper right hand corner of the VGA Screen.

You can change the internal clock like this :

- Turn the **Key** to **System.** *Puts you in SYSTEM MODE menu.*

- Press **Softbutton G** [UTILITIES]. *Puts you in UTILITIES menu.*

- Press **Softbutton A** [SET CLOCK]. *LCD Screen refers you to the VGA Screen.*

- Type in the time using the 24 hour clock, and the date using 2-digit format for the day, month and year.

- Press **ENTER**.

14.2 The CATALOGUE function

This function displays the show name from a show disk on the VGA monitor. If the disk is not a show disk, the monitor displays the message 'Show Data files not found'.

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

- Press **Softbutton F** [CATALOGUE]. *The disk is read, and the VDU displays the show name if present.*

- Press **EXIT** to continue.

14.3 Personality Disks

Personality disks contain the Personality files. A Personality disk may contain one Personality file or all of them.

There is a Personality file available for almost every DMX Fixture currently on the market. Avolites constantly produce new and updated Personality to keep up with new DMX devices and changes to old ones.

14.3.1 Personality Files

Personality files contain all the information the desk requires to patch and configure an Instrument including which Attribute Bank will control which Attribute.

These files are updated periodically and made available on the Avolites Website (www.avoloites.com), or can be obtained on disk from an Avolites distributor or Avolites Ltd. in London.

Subject to the information being available to Avolites Ltd., the Personality file will configure the desk for the optimum operation of a Fixture. It will also prevent illegal patching operations on the Fixture. See Section 5.17 *Illegal Addresses.*

14.3.2 Old Personality files

If you try to use old personality files, the desk will warn you. It is not recommended that you use them, except in emergencies.

14.4 Customising Personality Files

14.4.1 Editing Personality files

It is possible to customise Personality files. This may be in order to control a Fixture for which there isn't one, or to patch or control a Fixture in an unusual way.

Avolites personality files are in ASCII format and can be edited on any personal computer and saved on either double density or high density MS DOS formatted disks.

See Personality file Programmers Manual for more details.

14.5 User Curves

It is possible to define your own Dimmer curve for use with HTP Channels. The curves need to be defined in a PC text file, the format of which is described in *Appendix 7. User-defined Dimmer Curves.*

The Curves are loaded like this :

- Turn the **Key** to **Program.** *Puts you in LIVE PROGRAM MODE menu.*

- Press the blue **DISK** button on the Program Select bank. *Its LED lights up. Puts you in the DISK OPTIONS menu.*

- Press **Softbutton G** [USER CURVES].

- Press **ENTER** to load the Curves.

- Press **EXIT** to quit.

14.6 Resetting the desk to factory settings with the WIPEALL link

The desk can be totally reset by fitting the **WIPEALL link** on the main circuit board for the Pearl. Subsequently powering the desk up will perform a **Power On Reset**, restoring the factory defaults.

Before you do this, make sure you have a System Software disk. This is a precaution. You can make one yourself. See the first part of Section 14.7.3 *Changing your System Software.*

14.6.1 Fitting a WIPEALL link on the Pearl

- Turn **Key** to **Program.** *Puts you in Live Program Mode.*

- **Save your Show** on a blank disk. See Section 14.1.2 *Saving your show to disk.*

- Switch off the desk and unplug it. *To avoid damage to desk or technician.*

- Undo the Dzus fasteners holding the top panel to the case and open the desk. *Plugging in the desk lamp makes it easier to open the desk.*

- Locate the **WIPEALL Link**. This is on the main processor board (The largest PCB) near the main processor which is a large black chip.

- Move the blue **jumper link header** to connect both terminals.

- Plug in and power up the desk. *The LCD Screen should now display the AVOS II menu.*

- Assuming it powers up correctly, press **Softbutton A** [Start The System]. Do **NOT** select any other option.

- Power down the desk and unplug it.

- Remove the link. Replace this as it was found. *Do not forget to remove the link or the desk will always power up in AVOS!*

- Close the desk and refasten the Dzus fasteners.

- Plug in and power up the desk.

- Reload your Show in the usual way. See Section 14.1.3 *Loading a show from disk.*

14.7 System Software

All **System Software** procedures take place with the **Key** turned to **System.**

BEFORE DOING ANYTHING TO THE SYSTEM, SAVE YOUR SHOW!!

The System Software is the software that runs the desk. This is the software to which we are referring when we talk about Software upgrades or Software versions.

14.7.1 Finding your Software Version number

You will need to know this before calling Avolites for technical help.

- Turn the **Key** to **System.** *Puts you in System Mode.*

- Press **Softbutton A** [SERVICE]. *Puts you in the Service menu.*

- Press **Softbutton B** [SOFTWARE I.D].

The Software Version number is displayed on the prompt line of the Screen along with the release date.

14.7.2 Testing your buttons and faders

- Turn the **Key** to **System.** *Puts you in System Mode.*

- Press **Softbutton A** [SERVICE]. *Puts you in the Service menu.*

- Press **Softbutton B** [DIAGNOSTIC SCREEN].

- The Screen displays a representation of all the buttons and faders on the desk. You can press any button and see it register, or see the value output by any fader. The normal range of the faders is 0 to FF.

- Press the **Up Arrow** to quit.

14.7.3 Changing your System Software

!!!!TAKE CARE!!!!

OPERATIONS FROM THIS SECTION ALTER THE CONTENTS OF MEMORY AND SO CHANGE YOUR SHOW OR YOUR SOFTWARE. ONLY USE THESE FUNCTIONS IF YOU HAVE NEW SOFTWARE SUPPLIED FROM AVOLITES EITHER BY POST OR BY MODEM.

⇒ *YOU ARE ADVISED TO READ THE WHOLE SECTION BEFORE YOU START.*

⇒ *YOU ARE ADVISED **NOT** TO ATTEMPT TO CHANGE THE SYSTEM SOFTWARE JUST BEFORE SHOW TIME!!*

To do this you need :
2 blank formatted 1.44 Mb disks to save your show and existing system software onto.
2 disk labels and a pen
The disk containing the new System Software.

- Turn **Key** to **Program.** *Puts you in Live Program Mode*.

- **Save your Show** on a blank disk. Label it! See Section 13.1.3 *Saving your show to disk.*

- Turn the **Key** to **System.** *Puts you in System Mode*.

- Press **Softbutton A** [SERVICE]. *Puts you in the Service menu*.

- Press **Softbutton A** [RUN AVOS 2].

- Type in the Password **68340** and press **ENTER.** *Puts you in the AVOS menu.*

- At this point, you need to look at the top line on the Screen. IF it says Pearl 2000, then proceed to the next instruction. If not, you will need to upgrade your AVOS to Pearl 2000. See section 14.8 *Loading a new AVOS operating system.*

- Press **Softbutton D** [SAVE PROGRAM] and insert a blank preformatted high density disk.

- Press **ENTER** to **Save** your old System Software*. Not only does this back your System Software up, but it double checks that the disk drive writes properly before you dump the System!*

- Press **Softbutton C** [VERIFY] to check the Save. *Not only does this check your save, but also it double checks that the disk drive reads properly before you dump the System Software. If the Save or Verify was bad, try Saving and Verifying another disk. If still unsuccessful, consult Avolites before proceeding.*

- Assuming a successful save, remove the disk and label it OLD SOFTWARE. **WRITE PROTECT IT!**

- Insert the new System Software disk and press **Softbutton B** [BURN A NEW PROGRAM] followed by **ENTER**. *This loads the new System Software*.

- Once the System Software is loaded and the screen indicates that the process is completed, press **any key** to exit the menu. *Puts you back in the AVOS menu.*

- Press **1** on the **keypad** [Start the System] to start the system and automatically do a WIPEALL. *Desk starts up.*

- Reload your Show from the disk made earlier in the usual way. See Section 14.1.3 *Loading a show from disk.*

14.8 Loading a new AVOS operating system

You will need :
A blank disk.
The Disk containing the new AVOS operating system.

The file name for this is **RAM.PRL**

⇒ ***Do not attempt this unless the mains supply is stable. If the desk is turned off during programming new flash Memory will be required from Avolites!***

- Turn **Key** to **Program.** *Puts you in Live Program Mode*.

- **Save your Show** on a blank disk. Label it! See Section 14.1.2 *Saving your show to disk.*

- Turn the **Key** to **System.** *Puts you in System Mode*.

- Press **Softbutton A** [SERVICE]. *Puts you in the Service menu*.

- Press **Softbutton A** [RUN AVOS 2].

- Type in the Password **68340** and press **ENTER.** *Puts you in the AVOS menu.*

- Insert the disk containing the new version of AVOS.

- Press **Softbutton E** [AVOS EXTENDER] and follow the onscreen prompts.

- Press **1** on the **keypad** [Start the System] to start the system and automatically do a WIPEALL. *Desk starts up.*

- **After running AVOS you must do a WIPEALL.** See Section 1.6.1 *To do a WIPEALL.*

- Reload your Show in the usual way. See Section 14.1.3 *Loading a show from disk.*

14.9 Help and Hints

Problem : *A Personality File that is on the disk is not displayed in the Fixture list within the patch menu.*
Solution : Run INDEX.EXE on a PC, manually edit the index file this creates, or put the personality file on a separate disk.

Problem : *While loading new System Software the flash Memory programming stops.*
Solution 1 : Press the RESET button on the back of the desk, then try again.

Problem : *Desk crashes immediately on running new System Software, or some Channels are configured as reduction Channels, or on pressing some buttons, desk reports a BUS ERROR.*
Solution 1 : You have not done a **WIPEALL** after leaving AVOS.
Turn the Key to System and do a WIPEALL. See Section 1.6.1 *To do a WIPEALL.*
Solution 2 : Alternatively fit the WIPEALL link near the 68340 processor for the Pearl and then power up the desk. Remove the link (or every time you turn on the desk it will do a WIPEALL!). See Section 1.7.1 *To do a WIPEALL.*

Problem : *After fitting a **WIPEALL link**, you get PROGRAM CANNOT BE FOUND message.*
Solution : You must reload System Software. See Section 14.7.3 *Changing your System Software.* You can download the latest System Software from the Avolites Website at the address given on the front of the manual, or reload your old System Software from a disk.

Problem : *After fitting a **Wipeall link,** the Pearl does not power up correctly.*
Solution : You can force it to power up in the AVOS2 menu by fitting the **AVOS link** as follows :

- Switch off the desk and unplug it. (It is probably still open).

- Locate the links near the chip marked **SASHA**.

- Make link 1.

- Plug in and power up the desk. *The LCD Screen should now display the AVOS II menu.*

- Press **Softbutton A** [Start The System]. Do **NOT** select any other option.

- Power down the desk and unplug it.

- Remove the all the links. Replace these as found.

- Close the desk and refasten the Dzus fasteners.

- Plug in and power up the desk.

- Reload your Show in the usual way. See Section 14.1.3 *Loading a show from disk.*

14.9.1 *Formatting a PC disk*

In DOS :

- Place disk to be Formatted into the PC drive.

- At the DOS prompt type `FORMAT A: /F:1440 /U` to format a high density disk or `FORMAT A: /F:720 /U` to format a double density disk.

- Press RETURN.

In Windows 3.11 :

- At the Widows 3.11 prompt, enter File Manager.

- In the CAPACITY box, select 720K or 1.44 Mb **Do not select MAKE SYSTEM DISK or QUICK FORMAT.**

- Click OK.

- Click YES.

In Windows 95 :

- From File Manager click DISK.

- Click FORMAT.

- In the CAPACITY box, select 720K or 1.44 Mb and select format type FULL.

- Click START.

15. The Graphics Tablet

15.1 Introduction to 4D TRACK and the Graphics Tablet

If you do not have a Graphics Tablet, get one!

This can be purchased from your distributor as Avolites part number 1221-0190.

You should be comfortable and confident with the basic operation of the desk before using the Graphics Tablet.

4D TRACK gives you the ability to control Moving Lights in 3D space, and saves programming time. (The fourth dimension is time!)
The 4D TRACK provides a unique and unrivalled interface for controlling Moving Lights. And it's great fun!

This revolutionary, graphic Tablet interface, provides :

A Tracking System for controlling Moving Lights in 'follow spot' or 'relative' mode.

The Colour Palette for easy and rapid creation of individual colours, with store and instant recall facilities.

Select buttons for Fixtures, Groups, Preset Focuses etc.

15.2 An overview of the Tablet

The Tablet is divided into several sections. See *Appendix 3. Diagram of the Graphics Tablet.*

15.2.1 The Stage Area

On this you can draw physical features of the stage.

You have **Instant Access** to Pan and Tilt functions in this area. If the desk has been Trained, when you click on a point in this area with the stylus, the Selected Fixtures will immediately move to that point.

Since this area is a true and scale representation of the real stage once a few reference points have been marked it is easy to move Fixtures to any desired position.

You can move the Fixtures around the Stage area by dragging the Stylus.

15.2.2 The Colour Control Area

This offers **Instant Access** to Colour Attributes. It allows you to experiment with colours on Fixtures with Colour Mix Attributes in a way that has not been possible before.

You only have to drag the stylus about within the Colour Control area to find the exact colour you require. Experimenting with colours is great fun!

15.2.3 The Select buttons

These allow selection of Fixtures, Groups, Preset Focuses and individual Fixture Attributes.

The Attribute Select buttons are pre-programmed and defined in the Personality File. They are used to control the Attributes of a Fixture.

The Group Select buttons select the same Groups that can be accessed from the desk, and can be programmed from the desk or the Graphics Tablet.

The Focus Select buttons are the same as the Preset Focus buttons on the desk, and can be programmed or recalled from either the desk or the Graphics Tablet.

The Fixture Select buttons select the same Fixtures as the **SWOP** buttons on the desk. Fixture Select button 1 selects the Fixture on Handle 1, etc. These are set when the Fixture is patched.

It may be useful to mark up the paper insert with what is on each button. Additional inserts can be ordered from Avolites (Part number 11-03-0076. Got that?!).

15.2.4 The Fader

This allows absolute setting of any Attribute, and has **Instant Access** to the Dimmer channel on any Fixture.

15.2.5 The Function button

A selection of buttons for controlling the Programmer, LED mimic modes and other miscellaneous operations. Some buttons are not yet defined and these will be used for future options.

15.2.6 The Mouse pad and Screen selects

These are for future enhancements.

15.3 Connecting up the Tablet

- Turn the desk off.

- Connect the Graphics Tablet with the cable provided to the serial port on the desk and the back of the Tablet.

⇒ *Only use the cable and Tablet supplied by Avolites in order to prevent damage to either the Tablet or the desk. The Tablet is specially modified to work with Avolites desks.*

- Turn the Tablet on by pressing the blue button on the top left back edge of it. The Tablet will not power up until the desk is turned on. *The blue button should be in a depressed position.*

- Turn the desk on. *An LED on top left corner of the Tablet lights up when it is on.*

  It is best to leave the Tablet on when you turn off the desk so it will be correctly configured when the desk is turned on next time.

The Tablet may work immediately. If not :

- Turn the key to Program and press **Softbutton B** [USER OPTIONS].

- Use the **Down Cursor** to reach option 10 and then the **Right Cursor** button to select G-TABLET. If it is already selected, cycle round until it comes back again.

- Press **EXIT** to leave the user options menu.

The Tablet is now ready to use.

If you have any Fixtures patched you can immediately select them by clicking the stylus onto the appropriate Fixture select button. The Preset LED's on the desk should light up showing that they are selected.

If they don't, click on the [FIXTURES or MIMIC] button (bottom right of Tablet). Now the Preset LED's light up to show which Fixtures you have selected, rather than showing the Dimmer levels.

15.4 Using the Tablet

To click on a button on the Tablet, press on it with the Stylus. The button on the side of the stylus doesn't do anything.

For the most part, the Tablet simple provides an alternative way of performing desk functions. Apart from the few features exclusive to the Tablet, this section of the Manual will not explain what the functions do, only how to access them.

You can use the index if necessary to remind yourself of any functions you have forgotten.

As the Tablet mimics the desk, the desk should behave as if you were performing the functions in the usual way, changing Attribute Banks, lighting LED's etc. You may find it easier to do some functions partly on the desk and partly on the Tablet. The effect should be the same.

The only exception to this is the **Instant Access** features listed above, which provide quick access to Attributes and put them in the Programmer, but do not change the Attribute Bank.

15.4.1 Selecting Fixtures with the Tablet

- Click the stylus onto the button of the Fixture you wish to select.

15.4.2 Showing which Fixtures are selected

- Click on the **Fixtures OR Mimics** button to toggle the Preset Channel LED's to show either the Dimmer level, or which Fixtures are selected.

15.5 Controlling Attributes from the Graphics Tablet

15.5.1 The Attribute Select Buttons

These are the first 30 **Select** Buttons, and are coloured blue. They mimic the Attribute Bank buttons on the desk. The top row of buttons 1 - 15 access the upper Attribute of any given Attribute Bank, normally controlled by **Wheel B**. The bottom row of buttons 16 - 30 access the lower Attribute of any given Attribute Bank, normally controlled by **Wheel A**.
eg. Attribute button 3 controls Pan and button 18 below it controls Tilt.

You can either use the buttons to enter an Attribute Bank as normal (the Attribute Bank selected will be mimicked on the LED's on the desk) or you can use them to actually control the Attribute.

15.5.2 Working with Attribute Select buttons

There are some occasions when you may wish to address an individual Attribute of a Fixture, in the same way that the Attribute Bank buttons and **Wheels** allow this on the desk.

To adjust the level of a single Attribute :

- Select the Fixtures you want to control.

- Hold the stylus down on the appropriate Attribute button. *The appropriate Attribute Bank LED will light up.*

- Do not lift the stylus from the Tablet, but slide it up and down to increase and decrease the Attribute.

15.5.3 Using the Fader with Attributes

You can use the Fader to set the level of any Attribute, as if it was a **Wheel**.

- Select the Fixtures to be used.

- Put the stylus onto the Attribute Select button to be accessed. *The Attribute Bank button on the desk lights up.*

- Use the Fader bar to set a level by clicking on a particular level, or dragging the stylus up and down the Fader.

15.5.4 Align Attribute

This allows you to set the same level on a particular Attribute for all selected Fixtures. The source level is taken from the first selected Fixture. It behaves in exactly the same way as the Align Attributes function in the Moving Light menu on the desk.

- Select the Attribute you want to **Align** using an Attribute Select button.

- Click onto the first Fixture. This will become the **Source Fixture**.

- Select the Fixtures you wish align with the **Source Fixture**.

- Click on **Align Attribute.**

15.6 INSTANT ACCESS control features

Instant Access means that you can control the Attribute without the Attribute Bank changing. The Instant Access areas on the Tablet are :

The Dimmer button	Instant Access to Intensity.
The Stage Area	Instant Access to Pan and Tilt.
The Colour Control Area	Instant Access to Colour Wheel and Colour Mix Attributes.

Changes are put into the Programmer.

15.6.1 The Tablet DIMMER button

The Dimmer button gives **Instant Access** to the Dimmer channel of a Fixture.

- Select the Fixture.

- Click on the **Dimmer** button over the **Fader**.

Click or drag the stylus on the Fader to set the Dimmer level.

15.6.2 Absolute and Nudge

The Stage and Colour areas of the Tablet have two modes.

They can represent the actual colour or position the stylus is pointing at on the Tablet. This is achieved using the **Absolute** button. Using **Absolute,** the Fixtures will jump to the colour or position pointed at by the Stylus.

Alternatively they can change the colour or position current in the Fixture relative to the stylus movement. This is called **Nudge.**

15.6.3 The Stage Area

The Stage Area provides Instant Access to the Pan and Tilt Attributes of the Fixture. If the desk has been Trained, the stage area will provide a fairly accurate scale representation of your real stage. The four marks in a square should correspond to the four points you used to train your Fixtures, and the centre mark should line up with the centre of the stage.

15.6.4 Using Absolute and Nudge in the Stage area

Assuming you have the Fixture in *about* the correct position it is easier to select **Nudge**, then drag the stylus within the Stage area. Selected Fixtures will move relative to the initial position of the stylus.

Nudge must also be used if you wish to move a number of Fixtures keeping the relative position of each Fixture to each other. For instance, if a number of Fixtures are pointed at the stage to create a circle and you wish to move the whole circle about the stage, then use **Nudge**. Do not try and use **Absolute** since all the Fixtures will arrange themselves so that they are all pointing at the same position!

If you are in **Nudge** and wish all the Fixtures to point to the same position on the stage then click on **Align.**

15.6.5 Using the Colour Control Area

The colour mix palette allows easy creation of new colours and adjustment of existing colours.

Generally new colours are easiest to create in **Absolute** mode whilst changing of existing colours is easier with **Nudge** mode.

You can toggle between the two modes by clicking on one of the two buttons at the bottom of the colour palette.

15.6.6 To create a new colour with the Colour Control Area

- Select the Fixtures you wish to work with. They should have a Colour Mix facility for best results.

- If necessary turn on the **Dimmer**.

- Click on **Absolute** underneath the Colour palette to get roughly the right colour.

- Click at about the half way mark on the **Luminosity** bar.

- Move the stylus about within the Colour palette area to find approximately the right colour.

- Move the stylus on the **Luminosity** bar to adjust the shade.

  At the top of the bar the colour will be white and at the bottom of the bar the colour will be black (no light will be output).

- Save the colour as a Preset Focus, Memory or Chase Step as required.

15.6.7 To edit an existing colour

- Select the Fixtures and turn on the Dimmer as in creating a new colour.

- Click on **Nudge.**

- Move the stylus about within the colour palette until the desired result is achieved.

- Save the colour as a Preset Focus, Memory or Chase Step as required.

15.7 Preset Focuses on the Tablet

Preset Focuses 1 – 60 can be stored and recalled from the Tablet.

15.7.1 Storing Preset Focuses on the Tablet

⇒ *Care should be taken to ensure that you store the correct information into the correct Preset Focus as the Focus Mask is not displayed on the Tablet.*

To store a Preset Focus :

- Turn the **Key** to **Program***. Puts you in LIVE PROGRAM MODE.*

- Set up the Preset Focus on your Fixtures.

- Click on the **Store Focus** button*. The Focus Mask is shown on the LED's on the desk.*

- Check that the **Focus Mask** is correctly set.

- Click on the **Focus Select** button on the Graphics Tablet where you want the Preset Focus stored.

The 60 **Focus Select** buttons on the Tablet correspond directly to the first 60 Preset Focuses available in Pearl 2000. Preset Focuses 61 – 120 are only available using numbers typed into the Keypad.

15.7.2 Using Preset Focuses on the Tablet

To recall a Preset Focus :

- **Select** the Fixtures.

- Use the **Attribute Selects** to access the appropriate Attribute Bank.

- Click on the **Focus Select** button you wish to use.

15.7.3 DELETING a Preset Focus using the Tablet

- Press the blue **DELETE** button on the desk. *Screen asks you to grab a Chase, Memory or Preset Focus.*

- Tap twice on the Preset Focus you wish to **DELETE**.

15.7.4 Using Recall Focus on the Tablet

The **Recall Focus** function gives a safe way of editing **Positional** Preset Focuses, because you can only store the Pan and Tilt positions back into the Focus you first recalled, removing the risk of overwriting the wrong focus.

Recall Focus has a number of associated functions, these are:-
        Step to Next
        Step to Last
        Store Pan / Tilt
        Next Focus

These form the row of buttons over the Stage area.

- Click on **Recall Focus** and a **Focus Select** button with Positional information in it to be edited. *All the Fixtures in that Preset Focus are then selected to the Tablet.*

  > If you have selected FIXTURES on **Fixtures or Mimics** then the Preset LED's will light to show which Fixtures are used in the Preset Focus.

- If the Dimmers are not turned on, you can do this by clicking on **Dimmer** then **F** (full) on the Fader.

- You can now move all the Fixtures together, or step through each Fixture allowing easy adjustment of each one using the **Step to Next** and **Step to Last** buttons.
  Move them by sliding the stylus around the **Stage** area of the Tablet.
  To change just Pan **or** Tilt, touch the appropriate Attribute Select button (3 for Pan, 18 for Tilt), and slide the stylus.
  Fixtures can also be selected by using the **Group** and **Fixture Select** buttons.

- When you have finished editing the Preset Focus click on the **Store Pan / Tilt** button. *This will store the Preset Focus back into the Focus Select button you first recalled.*

- You can now use the **Next Focus** button to select the next Preset Focus, or use **Recall Focus** followed by clicking onto a **Focus Select** button to edit another Positional Preset Focus.

15.8 The ML (Moving Light) Functions

15.8.1 Locate Fixture

- Use the **Fixture** buttons or recall a **Group** to select the Fixtures.

- Click on **Locate Fixture.**

  > The Fixture will turn on in open white, no gobo, and at 50% pan and tilt.

Locate Fixture does not select LTP Channels for recording, you must still do this in the usual way.

15.8.2 Flip

This function is only for use with moving head Fixtures, because these have two possible Pan and Tilt positions for each point on the stage.

With the Fixture selected click on **Flip** and the Pan and Tilt positions will change to the alternative position.

This is useful when a Fixture has hit its Pan stop.

15.8.3 Select All

This Selects all the Fixtures currently in the Programmer.

15.8.4 Clear Programmer, Release Fixture and DeLatch Fixtures

These three functions work on the Programmer in different ways.

Clear Programmer clears the contents of the Programmer removing any changes you have made and not saved. It has the same function as the **Clear** button on the desk.

Release fixture or **Untouch** is similar to **Clear Programmer**, but it clears from the programmer **ONLY** Fixtures that are selected. Consider it a selective clear function.

DeLatch Fixture removes control of a Fixture from the Tablet, but leaves any changes in the programmer ready to be recorded.

15.8.5 OFF

This function turns any selected Attributes **OFF** in the Programmer.

* Select Fixtures you wish to work with.

* Select the Attribute you wish to turn **OFF.**

* Click on **OFF.**

15.9 Other functions on the Tablet

15.9.1 Programming a GROUP on the Tablet

* Select the required Fixtures.

* Click on **Record Group** in the ML function area.

* Click on a **Group** button to store the group on this button.

15.9.2 To use a Tablet GROUP

* Click on the appropriate **Group** button.

> Once recorded it is a good idea to note which Fixtures are within a group, either on a separate sheet of paper or on the Tablet template.

15.9.3 Record Memory

This is used to record a Memory exactly like the Memory button on the desk.

* Set up the scene you wish to record.

* Click on the **Record Memory** button*. The Memory LED on the desk will light up.*

* Press a Playback **SWOP** button on the desk to record the Memory.

15.9.4 Record Step

This is used to record a step when creating a Chase.

You must first open up Chase recording on the desk by pressing the **CHASE** button, and select the Playback Channel the Chase will be recorded on.

Clicking on **Record Step** then mimics the pressing of the flashing Playback **SWOP** button to record the steps.

You must then close the Chase again by pressing the **CHASE** button on the desk again.

15.9.5 Next Instrument

This selects consecutive Instruments in the last Group you used. They are selected in the order in which they were stored.

15.9.6 The ←→↑↓ buttons on the Tablet

These buttons mimic the **Cursor Keys** on the desk to navigate round Screens.

15.10 Using tracking on the Tablet

- Train the desk.

- Select the Fixture or a number of Fixtures.

- Click on the **Track ON** button on the Tablet.

- Drag the stylus on the stage area of the Tablet.

  > By default ABSOLUTE mode is selected. In this mode the Tablet stage area represents the stage with the centre of the rectangle being centre of the Tablet stage.

- When more than one Fixture is selected, the first Fixture selected is the leader, which other Fixtures will follow.

- You can record Preset Focuses, Memories or Chase Steps while the Tablet is in this Mode.

- To quit Tracking mode, press the **Track OFF.**

15.11 The Graphics Tablet Attributes and Tables Screen

This is displayed on Screen 10.

Half of the Screen displays the Attributes of the Selected Fixture alongside the Graphic Tablet Attribute Select button used to access each Attribute.

The other half displays the contents of a selected Table when accessed. See Section 9.2.10 *Screen 10 – ATTRIBUTES AND TABLES*.

A Table is a palette of pre-programmed colours or gobos preset onto the spare Attribute Select buttons not used by the Attribute Banks.
ie. buttons 13 - 15 and 28 - 30.

The Tables are stored in the Personality File of a Fixture, and are only editable by editing the Personality File. Not all Fixtures have Tables.

Some Tables contain useful presets like the colour values for matching your Fixture to a particular colour of Gel.

To access a table,

- Select your Fixtures.

- Click on one of the **Table Attribute Select** buttons listed above.
  If it has a **Table** stored on it, the Display will automatically switch to Screen 10 (the Graphics Tablet Screen) and a list of Table values will be displayed on the normally empty half of the Screen.

- Do not remove the stylus, but slide it to move the arrow up and down the Table.

- When you remove the stylus, the Table value that the arrow pointed to is output to the selected Fixtures.

15.12 Future functions of the Graphics Tablet

15.12.1 Set Stage Height

This function will not be available until a later software release.

- When available clicking on this button, followed by clicking on a position on the Fader will allow the tracking stage height to be set.

- Until this feature is available, if you wish to track Fixtures at head height they should be trained at this height, by for instance using a mic stand to train them.

15.12.2 The Screen 1, Screen 2 and Stage buttons and Mouse Pad on the Tablet

These buttons are for future development.

15.13 Using the Puck

The Puck is an alternative input device to the Stylus. Use whichever you prefer. Hold down the big button to click the puck.

15.14 Tablet Specifications

Full 3 dimensional tracking system for Moving Lights (Moving Head or Moving Mirror)

Colour control system for instant creation of new colours

Fixture selects

Focus selects

Group selects

Individual access to every Attribute

Fully scaled stage layout with nudge or absolute position

Full focus creation, recall and edit, with safe way of only storing pan and tilt.

Fast step through of Fixtures within a Focus

Fast step through of Focuses

Locate Fixture button, turns on the Fixture at a given position

15.15 Help and Hints

Problem : *Pan and Tilt do not work in the Stage area of the Graphics Tablet.*
Solution 1 : Either train the desk for Tracking, or turn the Tracking OFF in the ML menu.
Solution 2 : An old Personality File has been used to patch the Instrument.

Problem : *The Colour Mix area has little or no effect on the colour output from a Fixture*
Solution : Check that the Graphics Tablet is working correctly by clicking on **CLEAR** then re-selecting the Fixtures with the Tablet. Watch the Preset SWOP LED's on the desk to ensure that it is mirroring the Tablet (assuming you are set to Fixtures not Mimics). If this is working properly set the Luminosity bar to 50% and try again. Make sure your Fixtures have a Colour Mix facility, not just Colour Wheels.

Problem : *The Graphics Tablet is connected up and switched on, but does not seem to work.*
Solution : Select Setting 10 in the USER SETTINGS menu and select G. Tablet. If it is already selected toggle through the settings until it comes round again. If this does not work, leave the Graphics Tablet powered up and reset the desk using the Reset button.

16. <u>The Stage Remote</u>

The Stage Remote is a small hand held DMX controller connected to the desk. It is optional, and can be ordered from Avolites by its zappy title, Part number 30-12-0001.

The desk and the Remote are linked via a cable with a 25 pin D type connector on each end. This may be plugged into whichever end of the Stage Remote is most convenient and may be plugged in and unplugged at any time.

From the Remote you may control a DMX Channel, a Handle or a Memory. You can also step through a Chase.

16.1 Configuring the Stage Remote

- Turn the **Key** to **Program**. If you are already in **Program,** turn the **Key** to **Run,** then back to **Program.**

- In the **User settings** menu, set Option 10 to **REMOTE CONTROL**. *The remote control will not function correctly unless this is done.*

- Connect up the Stage Remote as described above.

- Press the blank white key on the bottom left hand corner of the Remote. *The LED's on the remote will flash.*

- On the remote press **EXIT** followed by **111**. *The LED's on the remote will flash again to show the Remote is enabled.*

From the remote you may now call up DMX Channels.

The remote only functions when the key is in PROGRAM mode.

16.2 To call a single DMX channel

- Press **DIM.** *Its LED lights up.*

- Select the DMX number on the remote.

- Press the **AT%** button.

- Press a number form 1 to 9 to set the level or press the **AT%** button again for 10 (100%).

For example, to turn DMX Channel 24 on to 70% press :
DIM 2 4 AT% 7.

To turn DMX Channel 100 on to Full press :
DIM 1 0 0 AT% AT%.

To enable access to DMX Channels on all four outputs, they are numbered thus :

Line A - DMX Channels 1 – 512
Line B - DMX Channels 513 – 1024
Line C - DMX Channels 1025 – 1536
Line D - DMX Channels 1537 - 2048

16.3 AND, THRU, INSTD, NEXT and LAST

You may create lists of Channels to turn on by using the **AND** button between Channel numbers.

(Channel number) THRU (Channel number) selects all the Channels inclusively between two Channel numbers entered.

NEXT and **LAST** go to the next and previous Channel to the last entered Channel Number. All other Channels go to zero.

When using the above functions, there is no need to press the **AT%** button unless you want to change the level from the previous one used. Channels are set at the last level to be entered with the AT% button or if this has not been used, they are set at 48%.

> This level has been chosen to reduce the risk of damaging a 110 volt par lamp accidentally been patched onto a 240 volt Dimmer channel.

Pressing **INSTD** (short for INSTEAD) will clear all Channels. (Sets all Channels to 0%.)

16.4 Using the Remote to recall a Memory

Memories are always recalled at 100%.

- Press **MEM** on the remote. *Its LED lights up.*

- Enter the Playback Channel number.

This is arrived at by multiplying the Page number less 1 by 15 (the number of Playback Channels on a page) and adding it to Roller Page Number less 1 multiplied by 150 and adding this to the Memory number on the page. Page number of page A = 0, page B = 1 etc.
A Memory on Playback Fader 12 of Page G, Roller Page 1 will be number 107 ([7-1 * 15)] + (1-1*150) + 12.
It's logical, just hard to explain!

- Press **AT%** to turn on the Memory.

16.5 Using the Remote to recall and step through a Chase

- Press **MEM** on the remote. *Its LED lights up.*

- Enter the **Playback Channel number**. See above.

- Press **AT%**.

- Use the **+** and **-** buttons to step forward and backwards through the Chase.

⇒ *Make up a Chase with all your Conventional lights in it in the order in which you want to focus them, and use the Remote to step through it.*

16.6 DISABLING THE REMOTE

- Press **EXIT 0 0 0.**

This turns off the remote, preventing accidental operation.

16.7 CHECK STATUS

Pressing the bottom left button will give the status of the Remote, Enabled or Disabled.

If the LED's flash once it is disabled.
If the LED's flash twice it is enabled.

17. The Script File System

The Script File system allows the automatic playback of a pre-programmed show to Timecode or from the Internal Clock in the desk. A Script File can also be run manually allowing automation of the desk from a 'STEP' button. Script Files are always recorded and edited with the **Key** turned to **System**.

The Pearl uses MIDI timecode for external control. See Section 24.3 *MIDI Time Code.*

> Desks with serial numbers below PRL330 may need a modification, contact Adam Profitt at Avolites UK or your distributor for details*.*

17.1 Building a Script File

The steps required to build a Script File are listed below :

- Program the required Memories and Chases.

- Turn the **Key** to **System.** *Puts you in System Mode*.

- Press **Softbutton D** [SCRIPT FILE PROGRAMMING]. *Puts you in the Script File menu and automatically puts you into the Script File Screen (Screen 8).*

- Press **Softbutton A** [SELECT A TIMER SOURCE]. *Decide which time source will be used, Timecode or Internal Clock*.

- **Either :**
  press **Softbutton A** [EXTERNAL TIME SOURCE]. *The clock is set to zero and the desk awaits an external Time Code*,
  Or :
  Press **Softbutton D** [INTERNAL TIMER / TC]. *The Internal Clock may start to run.*

  > It is easiest to build a Script File live. This way the actions you make are recorded as you perform them.

- The Pearl will default to Script File 1 after a WIPEALL. If you wish to change this, you can select a different Script File by pressing **Softbutton C** [SELECT A SCRIPT FILE] and entering the number of the Script File you wish to create on the keypad from 1 to 99.

- Press **Softbutton B** [CREATE A SCRIPT FILE]. You are now advised that you will erase a Script File if it is present, otherwise you will immediately be presented with the recording menu. Press **Softbutton F** [YES] to overwrite an old Script File.

- If you are running to External Time Code, start this running now. If you are using the Internal Timer it may already be running.
  If not, press **Softbutton A** [SELECT A TIMER SOURCE] then **Softbutton F** [START TIMER]. Press **EXIT** to quit the menu.

- Ensure that the Grand Master is at FULL or your Script File Steps may not record.

- Fade up and down the Playback Faders in the correct sequence and over the correct times to perform your Show. The Script File will record these movements. The Playback Faders must reach FULL in order for a step to be recorded properly.

  > You can use Memories and Chases on any Roller Page or Facet.

- Press **Softbutton F** [DONE] when finished.

A Script File records two types of Step.

The first kind is recorded when a Playback Fader is raised.
This type of step records three pieces of information :

The Playback Channel
The Timecode value
The time taken for the Playback Fader to move from the Trigger Point to FULL.

The second kind is recorded when a Playback Fader is lowered.
This type of step records three pieces of information :

The Playback Channel
The Timecode value
The time taken for the Playback Fader to move from FULL to the Trigger Point.

⇒ *It is important that the Playback Fader reaches FULL in order for the Timing information to be correctly recorded, so you must make sure that all your Memories and Chase Steps are programmed with the correct intensity levels.*

You can now replay the recorded Script File.

17.2 *Selecting a Script File for Editing or Playback*

You can select a Script File from the Script File Programming menu :

- Press **Softbutton C** [SELECT A SCRIPT FILE].

- Enter the Script File number you want to replay onto the **Keypad** or use the **Up** and **Down Cursor Keys** to highlight the Script File you are Selecting.

- Press **ENTER.**

17.3 *Checking your Script File*

You may wish to select the Internal Clock to check your files, as it is probably easier than rerunning your external Timecode source. The asterisk always indicates the next step to be run, and the live step is always shown below the clock as "Live = XX".

To select the Internal clock :

- Press **Softbutton A** [SELECT A TIMER SOURCE]. *Decide which time source will be used, Timecode or Internal Clock.*

- Press **Softbutton D** [INTERNAL TIMER / TC]. *The Internal Clock may start to run.*

  The Internal Clock will produce the same kind of code as the MIDI; Hours, minutes, seconds, frames. This can be used to edit 'offline'.

- If required, you can enter a new start time onto the prompt line using the **Keypad.**

Now you can check your Script File.

- Select a Script File for checking as above. See Section 17.2 *Selecting a Script File for Editing or Playback.*

- Entering a step number will output that step. *The Internal Clock, if used, will go to the Time for that Step.*

- **Either :**
  Enter another Step number for a Step to execute,
  Or :
  Press **Softbutton E** [CONNECT TIMER] to run the subsequent steps to Timecode.

17.4 Editing a Script File step

The editable aspects of each step in the Script File are :

> The Playback Channel
> The Timecode value
> The time taken to fade the Playback Fader in or out.

These are edited using the Assign Action and Assign Timecode menus. The arrow points to the Step currently loaded for Editing. You can move the arrow through the Steps using the **Up** and **Down Cursor Keys.**

17.4.1 The Assign Action menu

There is a code by each step.

The first letter is **'C'**, **'M'** or **'R'** denoting a **C**hase or **M**emory on the Playback Fader being activated, or the **'R'** denoting **R**amp Down, which is a Playback Fader going down to zero (ie. off).

A **C**hase or **M**emory has next a number indicating the Roller Page (**1**, **2** or **3**). The next letter is the Roller Facet (**A** to **J**) and the final number is the Handle number (**1** to **15**).

Ramp Down only has the Handle number.

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Use the **Up** and **Down Cursor Keys** to point the arrow at the step you want to edit.

- Press **Softbutton D** [ASSIGN ACTION].

- **Either :**
  Press **Softbutton A** [LOAD] to emulate raising a particular Playback Channel to full.
  Press the Softbutton, then press the SWOP button of the Playback Channel you wish use in the step.
  Or :
  Press **Softbutton B** [RAMP DOWN] to emulate lowering a particular Playback Channel to zero.
  Press the Softbutton, then press the SWOP button of the Playback Channel you wish use in the step.
  Or :
  Press **Softbutton D** [RAMP TIME] to enter the fade time you want for the step. Press the Softbutton, then enter the fade time in seconds on the keypad and press **ENTER**.

17.4.2 The Assign Timecode menu

The Timecode digits are HH/MM/SS.FF standing for hours, minutes, seconds and frames.

To assign Timecode to a particular step :

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Press **Softbutton E** [ASSIGN TIMECODE].

- Use the **Up** and **Down Cursor Keys** to point the arrow at the step you want to edit.

- **Either :**
  Type in the Timecode value directly using the convention above. *You should see the numbers as they are being typed for the step.*
  Or :
  Press **Softbutton D** to enter the value currently on the Timecode display into the step. See Section 17.4.4 *Assigning Timecode to a Group of steps.* The notes on **Softbutton A** tell you various ways to change the Timecode currently displayed.

17.4.3 Defining a Group of steps

You can assign Timecode to a Group of steps. The steps will all offset by the difference between the old Timecode and the new Timecode values, but retain their relative Timecode differences.

Create a Group like this :

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Press **Softbutton E** [ASSIGN TIMECODE].

- Use the **Up** and **Down Cursor Keys** to select the step you want to add to a Group with the arrow.

- Press **Softbutton F** [TOGGLE GROUP] to select the step. The legend '<' appears next to the step.

- Consecutive steps selected like this form a Group. Consecutive steps NOT marked like this also form a Group.

  This means that if you have a Script File of 20 steps and the first 12 steps are marked <, you have two Groups - steps 1 - 12 and steps 13 - 20.

17.4.4 Assigning Timecode to a Group of steps

You can now assign Timecode to different Groups of steps or to the whole Script File :

The Timecode digits are HH/MM/SS.FF standing for hours, minutes, seconds and frames.

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Press **Softbutton E** [ASSIGN TIMECODE].

- Press **Softbutton A** [SELECT A TIMER SOURCE] to select Internal Clock or external Timecode, and to stop and start the Internal Clock. You can type in a value (see the convention above) and press **ENTER** to load it onto the Internal Clock if required.

- **Either :**
  Press **Softbutton B** [ASSIGN TC TO FILE START] to assign the current Timecode value to the beginning of the Script File. You can do this with the Timecode stopped or running.
  All steps in the file will be offset by this value, but retain their relative timings.
  Or :
  Select one of the steps in a group using the **Up** and **Down Cursors**.
  Press **Softbutton C** [ASSIGN TC TO GROUP] to assign the current Timecode value to the first step in the Group. You can do this with the Timecode stopped or running.
  All steps in the Group will be offset by this value, but retain their relative timings.

17.5 *To delete a Script File Step*

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Use the **Up** and **Down Cursor Keys** to select the step you want to delete with the arrow.

- Press **Softbutton A** [DELETE STEP].

- Press **Softbutton F** [YES] to confirm the deletion.

17.6 *To insert a Script File step*

- From the Script File menu press **Softbutton D** [EDIT A SCRIPT FILE].
  You will see an arrow pointing at one of the steps of the Script File.

- Use the **Up** and **Down Cursor Keys** to point the arrow at the position where you want to insert a step.

- **Either** press **Softbutton B** [INSERT BEFORE CURRENT STEP]
  or press **Softbutton C** [INSERT AFTER CURRENT STEP] as
  appropriate. *A new step is inserted with no actions or Timecode allocated.*

- Use the Assign Action and Assign Timecode menus to fill in the empty step. See Sections 17.4.1 *The Assign Action menu* and 17.4.2 *The Assign Timecode menu* for details.

17.7 *Script File Parameters*

These are functions that allow the Pearl to automatically execute a Script File when it is powered up. The Script File can then run once, or loop continuously. This can be useful for exhibitions and similar installation – type situations.

To access the Script File Parameters :

- Turn the **Key** to **System.** *Puts you in System Mode.*

- Press **Softbutton D** [SCRIPT FILE PROGRAMMING]. *Puts you in the Script File menu and automatically puts you into the Script File Screen (Screen 8).*

- Press **Softbutton G** [SCRIPT FILE PARAMETERS]. *Puts you in the Execution Modes menu, and automatically goes to Screen 12, SCRIPT FILE PARAMS.*

17.7.1 To automatically execute a Script File on Power Up

- Enter the number of the Script File you want to autoexecute onto the **Keypad** or use the **Up** and **Down Cursor Keys** to highlight the Script File you want.

- Press **Softbutton A** [TOGGLE AUTORUN]. The prompt line says that Autorun is **ENABLED**, and the AUTO column shows that for this Script File, Auto is **ON**.

17.7.2 To set a Script File to LOOP

This can only be done with a Script File running from the Internal Clock, as the clock gets reset each time the Script File runs.

- Enter the number of the Script File you wish to loop onto the **Keypad** or use the **Up** and **Down Cursor Keys** to highlight the Script File you want.

- Press **Softbutton B** [TOGGLE LOOP MODE]. The prompt line changes from saying that the Script File will **Stop on final step** to saying that it is **Continuous**. The LOOP column shows that this Script File **ENDS** or runs **CONT**(inuously).

17.8 Explanation of other Script File commands

17.8.1 Reset Timer

This is only available when Internal timers are being used and it resets the timer to the last entered time from the select timer menu.

17.8.2 Reset Masters

This releases Playback Faders that are under the control of Timecode.

When pressed the output on stage may be blacked out! Beware!!

17.9 Recalling your Script File

- Turn the **Key** to **Run.**

- Press **Softbutton D** [RUN SCRIPT FILE]**.**

17.9.1 Selecting the Timecode source in Run mode

- Press **Softbutton D** [SCRIPT FILE FUNCTIONS]**.**

- Press **Softbutton A** [SELECT A TIMER SOURCE]. *Decide which time source will be used, Timecode or Internal Clock.*

- Press either **Softbutton A** [EXTERNAL TIME SOURCE]. *The clock is set to zero and the desk awaits an external Time Code,*
  or **Softbutton D** [INTERNAL TIMER / TC]. *The Internal Clock may start to run.*

You can also stop and start the Internal clock from this menu.

17.9.2 Selecting the Script File to run

- Press **Softbutton D** [SCRIPT FILE FUNCTIONS]**.**

- Press **Softbutton C** [SELECT A SCRIPT FILE].

- Enter the Script File number you want to replay onto the **Keypad.**

- Press **ENTER.**

This loads the selected Script File, but does not execute any steps.

17.9.3 Running your Script File

Having selected a Script File to run, you can execute it from step 1 like this :

- Press **Softbutton D** [SCRIPT FILE FUNCTIONS]**.**

- Press **Softbutton D** [START FROM STEP 1], then press **Softbutton D** [YES] to confirm**.**

The Script File will be loaded **but not executed**. The timer will be stopped and you can :

- **Either** :
  Press **Softbutton E** [CONNECT TIMER] to begin running the Script file to Timecode. *Softbutton now changes to [DISCONNECT TIMER] and the [NEXT STEP] Softbutton disappears.*
  Or :
  Press **Softbutton F** [NEXT STEP] to step through the Script File Steps manually.

If you want to start from any step other than step 1 :

- Type in the step number on the Keypad and press **ENTER.**

The step is immediately output. You can then connect the Timer or step through the Script File as above.

17.9.4 To PAUSE a Script File in Run mode

If you have any Script Files programmed, **Softbutton C** in RUN mode will toggle **PAUSE** and **PLAY** functions of the Script Files.

17.9.5 To quit running Script Files

To quit running Script Files :

- Press **Softbutton E** [DISCONNECT TIMER]. *Softbutton now changes to [CONNECT TIMER] and the [NEXT STEP] Softbutton reappears.*

- Press **Softbutton G** [CLEAR SCRIPT FILE PLAYBACKS] or **Softbutton H** [RESET MASTERS] to release any Playback Faders held in the Script File System.

When pressed the output on stage may be blacked out! Beware!!

- Press the **EXIT** button. *Returns you to the RUN menu.*

17.9.6 To run Script Files and use the Playback Faders manually at the same time

You can exit Script Files without disconnecting the timer. The Script File will continue to run, but you will also have the full playback functions of the desk at the same time.

- Press the **EXIT** button. *Returns you to the RUN menu.*

17.10 Timecode Checking

This function is used when you encounter noisy or corrupted MIDI timecode. It is enabled in the USER SETTINGS MENU by toggling User Setting 8 to TC CHECK ENABLED. In this mode, the Pearl samples incoming Timecode, and where it is found to be corrupted, it substitutes parallel code generated by the Internal Clock.

17.11 Help and Hints

Problem : *Steps do not finish recording when the fader is at the top of its travel.*
Solution : The Master Faders are not at full.

Problem : *Times do not seem to replay properly.*
Solution : You may have a Memory fade time programmed as well as a script file time. Make the Memory fade times zero, or zero the script file fade time.

Problem : *Some steps are missed out when replaying Script File.*
Solution : Check that each step time is greater or the same as the previous step time.

Problem : *Script Files play back irregularly, or at a highly accelerated rate.*
Solution : Your MIDI timecode may be corrupted past the point where the Pearl can compensate. Check the Script File has been correctly programmed by running it with the Internal Clock. If it runs properly, your Timecode source may be bad.

18. Glossary of terms

4D TRACK	The unique Avolites moving light Tracking system available using the Graphics Tablet.
ABSOLUTE	Mode for colours and positions on the Graphics Tablet in which the output of the Fixture corresponds directly with the position of the stylus on the Tablet. See NUDGE.
ADD	An ADD button can be associated with a Preset or a Playback Channel. It adds the Channel to the Output when pressed. The ADD functions in Run Mode can be very complicated. See *Appendix 5. Functions of the ADD button in Run modes.*
ADDRESSES	The DMX Channels occupied by individual Fixtures. The first Channel occupied is usually encoded onto the Fixture somehow (often by digital switches) and called its ADDRESS.
ALIGN	A means of copying Attribute characteristics from the first Fixture selected to other selected Fixtures.
ATTRIBUTE	One Channel of an Intelligent Fixture.
ATTRIBUTE BANK	A set of buttons controlling which Attributes the Handles connect to.
AVOS	The most basic Operating mode in the desk. AVOS allows loading of the System Software.
BACKUPS	Copies of a show stored to disk for safety.
BPM	Beats Per Minute.
CHASE	A sequence of one or more pre recorded steps programmed using the CHASE button. It can be replayed automatically if desired. Sometimes known as SEQUENCE, STACK or Linked Cues.
CHASE STEPS	Individual component steps of a Chase. See above
COLOUR CHANGER	A mechanical Fixture for changing the colour of a light source, usually by scrolling through a roll of different coloured gels or by moving special filters into the light beam.
COLOUR MIX	A system of three filters that can each crossfade from white to a colour, or one colour to another. It is a feature of some Intelligent Fixtures, which enables thousands of different colours to be created.
COMPLEX STEP	A Chase Step that has Individual Step Times programmed into it, and hence will not use Global times. See SIMPLE STEP, GLOBAL CHASE TIMES, INDIVIDUAL STEP TIMES.

CONNECTED CHASE

A Chase which has been brought under control of the Wheels and other Chase functions by pressing the CONNECT button.

COPY

A system of replication of Memories and Chases used by the Pearl that links all the copies together. A change in any one of the replicas results in the same change to all of them. See PHOTOCOPY.

CROSSFADE

Or X FADE. A smooth transition from one state to another. Can be Dipless or not Dipless. On Avolites desks all Chases run Dipless fades.

DEVICE

See FIXTURE.

DIPLESS

The value of the crossfade never drops below the higher of the two crossfading levels.

DMX

DMX512(1990) a specification for communication between control desks and Fixtures, Originally for Dimmers it has been adopted as a control protocol for most Intelligent Fixtures. It can carry 512 different Channels of data.

DMX TRANSMISSION RATE

The rate at which DMX data is broadcast from the desk to the Fixtures.

FADE

A smooth transition from one state to another.

FADING CHANNEL

An LTP Channel which CROSSFADES. See INSTANT CHANNELS.

FIXTURE

Any lighting instrument that is patched using a Personality. Generally refers to a moving light or colour changer, not an individual Dimmer channel. Also called Intelligent Fixture, Device, Instrument, Moving Light.

FLIP

A function for use with Moving Head Fixtures. They have two possible Pan and Tilt positions for each point on stage, and FLIP will alternate between them.

FOCUS MASK

Determines which Attributes will be stored or recalled when saving or recalling a PRESET FOCUS. Attributes that will be recalled are indicated by the LED in the Attribute Bank being illuminated. These can be set or cleared by pressing the appropriate Attribute Bank select button.

GENERIC

Term used to indicate a Dimmer channel. See also FIXTURE.

GLOBAL CHASE TIMES

Fade and Wait times which apply to any Chase Step which does not have Individual Step times programmed into it. These steps are called SIMPLE STEPS. See INDIVIDUAL STEP TIMES, COMPLEX STEP, SIMPLE STEP.

GRAPHICS TABLET Optional input device for the Pearl that controls Dimmers and Fixtures by means of clicking a Stylus or a Puck on an electronic slate.

GROUP A GROUP is a preassigned collection of Fixtures that can be selected with a single button press.

HANDLE The row comprising two Preset Faders, the ADD button and the SWOP button which control each Intelligent Fixture or the single Preset Fader which controls a Dimmer Channel.

HTP Highest Takes Precedence, a mechanism for determining the output level of a Channel held in more than one Playback Channel. The Channel outputting the Highest value at any given time will always determine the level of the Channel. Also see LTP.

INCLUDE A means of transferring the contents of a Memory or Chase Step into the Programmer.

INDIVIDUAL STEP TIMES
Times programmed into one individual Chase Step from the TIMES menu. These steps are called COMPLEX STEPS. See GLOBAL CHASE TIMES, SIMPLE STEP, COMPLEX STEP.

INSTANT CHANNEL
A channel which does not use fades generated by the desk, and moves in discrete jumps from one state to another. See FADING CHANNEL.

INSTANT ACCESS A function on the Graphics Tablet that does not require the correct Attribute Bank to be selected in order to control an Attribute.

INSTRUMENT See FIXTURE.

INTELLIGENT FIXTURE
See FIXTURE.

LINKS Connections between Chase Steps enabling them to run on from one to another automatically.

LOCATE FIXTURE A feature of the desk that makes it easy to find your selected Fixtures by putting them in Open White with Pan and Tilt at 50%.

LTP Latest Takes Precedence, a mechanism for passing control of a channel from one Playback Fader to another on the basis that the last moved Playback Fader has control, providing that Playback Fader has moved passed the Trigger point. (See TRIGGER POINT). It follows that LTP Channels always fade in a dipless way from one state to another. (See DIPLESS). Also see HTP.

MACROS	Macros allow functions programmed into an Intelligent Fixture by the manufacturer to can be executed by sending a DMX command sequence from the desk. They can allow you to reset the Fixture for example. The DMX command sequences are defined within the Personality File.
MASTER FADER	These are the Grand Master, the SWOP Master, the ADD Master, the Preset Masters A & B, and the Playback Master.
MEMORY	A single stage look programmed onto a Playback Fader using the Memory button. It does not have Wait times. Also known as CUE, STATE, LOOK.
MEMORY MODE	A playback format programmed into a Memory. There are Memory Modes 0, 1 and 2.
MIDI	Stands for Musical Instrument Digital Interface. It is the established hardware and software specification enabling the exchange of data between digital musical instruments (such as keyboards) and other devices such as computers, sequencers and sound and lighting desks.
ML MENU	Stands for Moving Light Menu.
NUDGE	Mode for colours and positions on the Graphics Tablet in which the output of the Fixture changes relative to the movement of the stylus on the Tablet. See ABSOLUTE.
OFF	Any channel can be ON or OFF in any given Playback Channel. A Channel which is OFF is recorded in the Playback Channel, but will not change in any way when its Playback Channel is recalled. See ON.
ON	Any channel can be ON or OFF. A Channel which is ON is active in the Playback Channel. It will be under the control of the Playback and follow the rules set out for HTP, LTP and LTPF Channels.
PARK	This happens to an instrument when its DMX address is taken by another instrument during a later patching session. The Instrument must then be repatched.
PERSONALITY FILE	A description of what Attributes a particular Intelligent Fixture has and how the desk will patch and use these. It also determines which Attribute Bank will control which Attribute. Avolites Personality Files are in ASCII format and can be edited on any personal computer which can read and save onto MS DOS 1.44 Mb (High Density) 3.5 inch disks.
PERSONALITY DISK	A disk on which Personality Files are stored.
PHOTOCOPY	A method of replicating Memories and Chases that are completely independent of each other. See COPY.

PLAYBACK	Area of the desk that can replay recorded Memories or Chases. It contains Playback Channels recalled using Playback Faders and Playback ADD and SWOP buttons.
PRESET FADERS	A group of Faders that can be set manually to output a value to a desk Channel.
PRESET FOCUS	A term used to describe a referenced pre-defined state for an Attribute that can be recalled whenever required during programming. Each Fixture may be different in the Preset Focus, and the levels can be edited. This is how it differs from a TABLE. On Avolites desks each Preset Focus can be named, and recalled with a single button press.
PROGRAM	Desk mode in which programming functions are enabled, but System Software is protected. See RUN, SYSTEM.
PROGRAMMER	The part of the desk which contains Channel information prior to recording.
REDUCTION FADER	Feature that enables the output of a Dimmer Channel to be temporarily limited to a defined value.
RUN	Desk mode in which all Playback functions are enabled, but all programming functions disabled.
SCREEN	One of the pages of information displayed on the LCD Display.
SCRIPT FILE SYSTEM	System that allows Playback to be automated and controlled by Timecode.
SELECTED	A Fixture that is under manual control.
SEQUENCE	See CHASE.
SHAPE	A preprogrammed effect available which is applied to an Attribute. It can then be customised and stored in a Memory.
SHARED PRESET FOCUS	A Preset Focus in which information is only stored for one Fixture, but is available to all Fixtures of that type.
SIMPLE STEP	A Chase Step which does not have Individual Step Times programmed into it, and hence will use Global Chase times. See COMPLEX STEP, GLOBAL CHASE TIMES, INDIVIDUAL STEP TIMES.
SOFTBUTTONS	Buttons with different functions which are defined by the markings on the Screen. In this manual the Softbuttons are always in **bold**, with the legend on the Screen [in square brackets].
STACK	See CHASE.

STAGE REMOTE	Optional input device for the Pearl allowing control of DMX Channels and recall of Memories and Chase Steps.
SWOP	A SWOP button can be associated with Playback or Preset Channels. It solos the Channel to the Output when pressed, killing all other Preset or Playback outputs.
SYSTEM	Desk mode allowing access to the operating software of the Pearl.
SYSTEM SOFTWARE	The software which runs the Pearl.
TABLE	List of pre-defined levels allowing recalling of a channel by name. Each Fixture uses the same value, and the Table is not editable. This is where it differs from a PRESET FOCUS.
TC	Abbreviation for Timecode. In the Pearl, this is always MIDI Timecode.
TRACKING	A mode in which Moving Lights can move around an area all pointing at the same spot.
TRAINING	The process of recording points on a stage so that the desk can work out the TRACKING for Moving Lights.
TRIGGER POINT	The level set in the User Settings which determines at which point a Playback Fader triggers the LTP Channels programmed onto it.
UNFOLD	A function that allows Chase Steps to be laid out onto Playback Faders for easy editing.
USER SETTINGS	User definable desk settings. Found in the USER SETTINGS MENU.
VIEW	A function that allows different sets of data to be shown on the Screen
WAIT	A period of time that elapses before a Fade happens in a Chase.
WIPEALL	A process which clears all the previous programming out of the desk, but does not touch the System Software.
WHEEL A	This is the left hand wheel. It is used to control the upper Attribute of each Attribute Bank.
WHEEL B	This is the right hand wheel. It is used to control the lower Attribute of each Attribute Bank.

19. Appendix 1. Differences between Pearl 2000 and previous versions

Pearl 2000 involves changes both in the hardware and software configurations of the Pearl. The use of a VGA monitor is now integral to full use of the Pearl 2000 software, although you can use most of the functions by following the prompts on the LCD screen as before. A video card is required to drive the monitor, and may not already be fitted. A new Pearl 2000 has 'Rolacue Pearl 2000' emblazoned on the front panel. To find out the status of an older Pearl, please contact your supplier. It is still possible to run Pearl 2000 Software on an unmodified board.

Hardware modifications are also necessary to run the 2 DMX outputs available to an upgraded board.

Avolites Limited sell an inexpensive upgrade kit, which includes new key tops for the buttons, which have changed their function. Contact your nearest supplier for details.

Here are the main differences you will find between Pearl 2000 and a previous model. For more details, use the index to find information in the main body of the manual.

- **Software Version I.D.** Now on **Softbutton B** when you put the key to SYSTEM.

- **More DMX Channels**. A new Pearl 2000 can control 2048 DMX Channels on 4 patchable DMX outputs. An upgraded earlier board can run 1048 Channels on 2 patchable DMX outputs.

- You can run up to **120 Intelligent Fixtures** and **120 Dimmer Presets**, or up to **240 Dimmer Presets** only on Pearl 2000, provided that you have enough DMX Channels available. Each Dimmer Preset can be patched to one or more DMX Dimmer Channel. A DMX Dimmer Channel can only be patched to one Dimmer Preset.

- The new **Shape Generator** allows you to use preprogrammed effects to build a Memory. This includes things like circle movements and rainbow colour chases for Fixtures with a Colour Mix facility.

- There are now four **Pages of Fixtures** available, selected using the four white buttons at the top of the 12 button cluster to the left of the **Wheels**. When patching Intelligent Fixtures, you patch them onto the grey Preset **ADD** buttons of each of the four Pages. As there are 30 Preset **ADD** buttons and four **Pages of Fixtures**, this is how we can now patch up to 120 Intelligent Fixtures.
You can additionally patch any number of Dimmer DMX Channels onto the blue Preset **SWOP** buttons on each of these Pages. Thus, you can also patch 120 Dimmer Presets.
If you have any grey Preset **ADD** buttons available that you are not using for Intelligent Fixtures, you can patch Dimmer DMX Channels onto them also.

- **Preset Faders only control Intensities**. Using the **Pages of Fixtures** principle above, you can access Intensities of all patched Fixtures and Dimmers. You can swap pages at any time. Intensity levels are maintained when pages are changed. You have to match levels with the existing Intensity of a Channel before you can control it when you change page.

- **The link between the Banks of Attributes and the Preset Faders has been completely broken.** No matter which Attribute Bank you are in, you will always have intensities on the Preset Faders. Hence, you can no longer patch odd Dimmer Channels onto unused Attribute Banks. The **Wheels** control all the LTP functions.

- **Wheel A** controls intensities for all Fixtures and Dimmers, regardless of where they are patched.

- There are now **120 Preset Focuses**.
  1 – 30 live on the grey Preset **ADD** buttons as usual.
  1 – 60 are accessible from the Graphics Tablet as before.
  1 – 120 are accessible by typing in the number of the Preset Focus.

- There are now **120 Groups**.

- There are up to **40 Attributes** on **20 Attribute Banks** available per Fixture. (Attribute Bank buttons 1 – 10). Attribute Bank 11 has become a **Shift** key to access the second page of Attribute Banks. No Fixture at this time has any Attributes on the second page, but it can't be far away! Attribute Bank 12 is still the Reduction Bank.

- The fact that Dimmer Channels have been separated out of the Attribute Banks means that **Reduction Channels have been simplified**, and no longer ever need to be patched. Attribute Bank 12 temporarily puts all the Preset Faders into Reduction mode.

- **Shared Preset Focuses**. This allows you to select one Fixture and use it to program Preset Focuses that then get copied automatically into all the other Fixtures of the same type. You can therefore use one Fixture before a show to program a whole bunch of Preset Focuses before a show, or save yourself a load of time if you add extra Fixtures to an existing rig. This also saves a lot of memory space in the desk. The Preset Focuses that optionally load when you patch a Fixture are of this type.

- New button functions on the top row of grey buttons over the keypad numbers are (from left to right):
  - **CHANNEL**. This allows you to access Fixtures to be selected and controlled by entering numbers. **A Fixture can be referred to by type** (eg. Cyberlight 2, Intellabeam 12) regardless of the number of the Handle it is patched to. You can easily select **ODD** and **EVEN** Fixtures from a Selected group of Fixtures.
  - **FOCUS**. Allows access to all Preset Focuses including those that are not allocated a grey **ADD** button (Preset Focuses 31 – 120).
  - **INCLUDE**. Include function has moved, and has enhanced features. See below.
  - **NEXT SCREEN**. Allows navigation through the Screens. The old **VIEW CURSORS,** which allowed navigation forwards and backwards through the Screens, are gone.

- **INCLUDE** function now allows you to partially recall a Memory or Chase Step. You can Select which Attributes and which Fixtures you want to recall information into. A step can be INCLUDED from an UNFOLDED Chase. A shape in the Memory will get automatically INCLUDED.

- New **AVO** button located to the right of the number 3 on the keypad is a Shift key to allow you to Select Dimmers patched onto the upper Preset Faders to be Selected using the blue Preset **SWOP** buttons.

- New Chase Editing buttons are located on the centre row of the Sequence Control area, to the right of the Chase STOP button. They are from left to right the **LIVE TIME, LIVE STEP**, **NEXT TIME** and **SNAP BACK** buttons. They allow Chase Steps and Chase Step Times to be Edited. The Chase **EDIT** button has been removed.

- The old Chase **EDIT** button is now the **REVIEW** button which allows you to review your Chase Edits.

- **FAN** mode has been implemented. This changes the way the two **Wheels** control an Attribute for a group of Fixtures, so that the effect of moving the **Wheels** has a greater effect at the extremes of the group; also the direction of movement reverses at the centre of the group, thus creating a fan effect from the centre of the group outwards. This can be applied to any Attribute, not just Pan and Tilt.
  The **FAN** button replaces the old **RESTORE CHASE OUTPUT** button.

- The **RECORD ALL CHANNELS** recording mode has been discontinued.

- The **Focus Mask** can now only be changed in the User Settings menu.

- Certain **disk functions** have been improved, and you are now recommended to store your show on MS DOS preformatted 1.44Mb disks. Currently the desk cannot format these, but in future Software versions this will be possible. A large show can be stored across several disks. All Saves are now time and date stamped, and you can enter a show name to identify the disk.

- **Script Files** can now automatically execute a Script File when the desk is powered up. A Script File can be set to loop, if it is running from the internal clock.

- New **Patch Utilities** in the Patch menu has new functions, including **FIND FIXTURE,** which helps you to locate a Fixture for which you do not know the DMX Address.

20. Appendix 2. Diagram of the Pearl

21. Appendix 3. Diagram of the Graphics Tablet

22. Appendix 4. Intelligent Fixture Manufacturers

Moving Light Mfr. Contact Numbers			
Country	**Company**	**Contact**	**Telephone Number**
UK	Abstract		+44 (0) 116 278 8078
UK	Andromeda Lighting	David Morrell	+44 (0) 160 868 3673 (fax) 3417
Germany	Amptown	Rolf Garnes	+ 49 40 64 (fax) 0445
Italy UK	Clay Paky Pulsar	Andy Graves	+ 39 35 654 311 +44 (0) 1 223 66798
Italy UK	Coemar Coe-tech	Mr Fausto Kevin Foster	+ 39 376 779 336 +44 (0) 1604 785 878
UK	Fal Lightmasters		+44 (0) 1480 407727
USA	High End Systems Lightfactor	Mick Hannaford	+1 512 836 2242 +44 (0) 181 575 5566
UK	Lampoo Batmink		+44 (0) 1458 833186
UK	M & M	Michael Goldberg Nigel Sadler (Sales)	+44 (0) 171 284 2504
Denmark UK	Martin Professional Martin UK	Ian Kirbie	+44 (0) 1622 755 442
UK	NJD		+44 (0) 115 939 4122
USA	Pan Command		+ 1 408 986 8800
UK	Ryger		+44 (0) 1773 530325
Italy UK	Sagitter JYG	Stefano	+39 35 951 738/777 +44 (0) 1708 530325
UK	SGM JYG		+44 (0) 1708 741613
Italy	Space Cannon	Alexanda Baleski	+ 39 131 772 288 (fax) 292
UK	Starlight	Ray French Martin Lubach	+44 (0) 171 511 4400
UK	Strand Lighting	David Burtenshaw	+44 (0) 181 560 3171
Italy	Studio Due	Franco Bertini	+39 761 352 520
UK	TAS Coe-tech	Kevin Foster	+44 (0) 1604 785878
USA	Vari-Lite Inc	Field Service	+1 214 630 1963
UK	Vari-Lite Europe Ltd	Technical Support	+44 (0) 181 575 6666
UK	Wynne, Wilson Gotelier Ltd (Tunbridge Wells)	Peter Win Wilson	

23. Appendix 5. Functions of the ADD button in Run modes

23.1

This table applies to Normal Run mode, Take Over Run mode and Two Preset mode.

LINKS Off or On	FADER at Full or Zero	Fader mode in Chase Parameters FADER WILL RELOAD CHASE FADER STOPS / GO TO START FADER STOPS /STARTS CHASE	Effect
OFF	ZERO	FADER WILL RELOAD CHASE	DOES NOTHING
ON	ZERO	FADER WILL RELOAD CHASE	CHASE RUNS AS IF FADER AT FULL
OFF	FULL	FADER WILL RELOAD CHASE	RUNS NEXT CHASE STEP
ON	FULL	FADER WILL RELOAD CHASE	CHASE GOES STRAIGHT TO NEXT STEP AND CONTINUES TO RUN
OFF	ZERO	FADER STOPS/STARTS CHASE	RUNS CHASE TO END OF CHASE STEP
ON	ZERO	FADER STOPS/STARTS CHASE	CHASE RUNS AS IF FADER AT FULL
OFF	FULL	FADER STOPS/STARTS CHASE	RUNS NEXT CHASE STEP
ON	FULL	FADER STOPS/STARTS CHASE	CHASE GOES STRAIGHT TO NEXT STEP AND CONTINUES TO RUN
OFF	ZERO	FADER STOPS, GO TO START	RUNS CHASE TO END OF CHASE STEP
ON	ZERO	FADER STOPS, GO TO START	CHASE RUNS AS IF FADER AT FULL
OFF	FULL	FADER STOPS, GO TO START	RUNS NEXT CHASE STEP
ON	FULL	FADER STOPS, GO TO START	CHASE GOES STRAIGHT TO NEXT STEP AND CONTINUES TO RUN

Note that FADER STOPS, GO TO START assumes that the Fader has been brought to zero and the Chase has therefore stopped.

24. Appendix 6. MIDI implementation details

MIDI is fully implemented on the Pearl, however a small modification on the motherboard is required for desks below serial number PRL330. . Details of how to do this can be downloaded from the Avolites Website or obtained by contacting the service department at Avolites UK.

The desk can respond to MIDI Timecode. It can also respond to or output MIDI note on / note off information which emulates certain buttons being pressed or faders being moved. This type of MIDI control is defined here.

This appendix assumes a reasonable working knowledge of MIDI. A number of MIDI books can be found in most technical bookshops, a short reading list is suggested at the end of this appendix.

User Preference 15 sets the desk to be a MIDI master (outputs MIDI), MIDI slave (responds to MIDI) or no MIDI.

24.1 A short review of the MIDI packet

The normal MIDI data block is as follows :

STATUS BYTE1 BYTE2

or

`1sssnnnn 0xxxxxxx 0yyyyyyy`

The status byte always has its MSB set; data bytes always have this clear.

`sss`   =   the status number

`nnnn` =   the MIDI channel number. This is set through the User Preferences menu.

`xxxxxxx` and `yyyyyyy` are the data bytes

24.2 Pearl MIDI implementation

A number of standard MIDI packets have been used.

The usual name for these is given in *italics.*

All commands are given in hexadecimal notation and denoted by '$' for clarity, unless otherwise stated.

The MIDI Channel number is always shown as 'n'.
eg. `$Cn` = is the Status byte command to set the Roller page number.

24.2.1 To set the current page
program change

`$Cn` signifies that the Roller Facet and Roller Page data will follow.

The following table gives the values for these:

Facet/Page	1	2	3
A	7d	7e	7f
B	02	0c	15
C	03	0d	16
D	04	0e	17
E	05	0f	18
F	06	10	19
G	07	11	1a
H	08	12	1b
I	09	13	1c
J	0a	14	1d

example $Cn $04   Desk changes to Facet D Roller Page 1.

$Cn $19   Desk changes to Facet F Roller Page 3.

24.2.2 *To set the level of a playback (on the current page)*

To run a Playback Fader, this is a 3 byte command consisting of the Playback Fader number and the Playback Fader level.

note on

$90 Playback Fader number, Playback Fader level (range 0..19, 0..127)

example $9n $03 $7F   Playback Fader 4 at level full.

(Note that Playback Fader numbers start at zero).

24.2.3 *To step on a chase etc.*

To control aspects of a Chase, you need a 3 byte command.

after touch

$A0 Playback Fader number, control code

control codes are :

> $00   stop chase
> $01   run chase
> $02   restart from step 1
> $03   fade to next step using programmed fade times
> $04   Snap directly to next step

24.3 MIDI Time Code

Script files can be run from MIDI time code.

Quarter-frame message types are fully supported and these follow the standard format, which can be found in most MIDI handbooks. See Section 24.5 *Further reading* at the end of this appendix.

A suitable EBU/LTC Timecode to Midi Timecode converter is manufactured by JC Cooper Electronics whose address is 12500 Beatrice Street, Los Angeles CA 90066 USA, or through Avolites UK.

24.4 Midi Problems

The desk supports a full data rate burst for 2 seconds, after that data may be lost since it cannot be processed.

A MIDI debug Terminal is available. To activate this :

- Turn the key to **System.**

- Press **Softbutton A** [TEST].

- Press **Softbutton D** [ENABLE DEBUG BUTTONS].

- Turn the key back to the required position

- Pressing the unmarked top right Sequence Control button will toggle the MIDI terminal screen, which is displayed on the VDU.

- Pressing the same button again disables the MIDI terminal screen.

The operation of this button is inhibited by selecting **Softbutton F** from the TESTS menu or resetting the desk.

24.5 Further reading

MIDI Systems and Control by Francis Rumsey
Published by Focal Press, ISBN 0-240-513000-2.

MIDI Detailed Specification
Published by the International MIDI Association as document 213/649-6434.
Contact them at
5316 W.57th Street,
Los Angeles,
CA 90056 USA

25. Appendix 7. User-defined Dimmer Curves

The file format for the user defined dimmer curve is very simple.

It consists of 256 lines of data, each line containing a decimal number between 0 and 255 and this represents the output value for a given input value which is the line number. Comments are allowed but there must be at least 5 spaces after the entry.

No other text is allowed.

The file name must be UC.DAT

Example entries for the user curve data file:

```
00      at level 0 the output will be 000
05      at level 1 the output will be 005
07      at level 2 the output will be 007
09      at level 3 the output will be 009
11      at level 4 the output will be 011
13      at level 5 the output will be 013
19      at level 6 the output will be 019
21      at level 7 the output will be 021
```

This file MUST be 256 lines long.

26. Appendix 7. The Personality File System

This Appendix is principally designed for those users, who wish to know, how to write or alter a Personality File.

The Personality File system uses a simple programming language. Whilst we have attempted to create the simplest manual some prior knowledge of writing software is assumed.

If your eyes glaze over at the thought of writing software, read no further and enjoy using your desk in the knowledge that at Avolites there are software programmers who actually enjoy writing personality files and if you come across an instrument for which a personality file is required contact us and we will help.

26.1 What is and how do I write or change a Personality file?

The personality file is an ASCII text format file containing information on how the desk should patch each channel of an instrument.

Since the files are in ASCII text format you can easily modify them and create new versions for your own use.

You can use any editor or word processing software running on an IBM PC or compatible, providing it has a 3.5 inch floppy disk and can save in 720K format. (Most can).

When editing files you must ensure your word processor is set to save in plain ASCII text format. If you use Windows Write make sure that when you open the file you select 'no conversion' and when you close the file you save it in the 'text file' format.

Before editing make a backup of the original, in case your edits do not work.

26.2 Personality file naming conventions

There are three extensions used by personality files, these are

.PER
.D2
.R96

.R20

files with the extension .D2 are out of the scope of this manual and relate to Avolites Diamond 2 personality files.

Files with the extension .PER were created prior to Sapphire and Pearl 96 Software. Because there are a variety of different versions of these a new extension .R96 (Rolacue 96) was designed.

Sapphire and pearl 96 software will read any .PER file and any.R96 file, however when .PER files are read a message will be presented to the user to warn that an old personality file is being used and not every function of the desk will work correctly. Typically this includes tracking, pre-loaded focuses and locate fixture and tablet functions.

A better naming convention has been used on .R96 files in which the first two letters of the file name describe the manufacturers name.

Files with the extension .R20 can only be used with Pearl 2000 and Azure 2000 control desks. These files have additional fields for the enhanced functionality provided within these desks. The new fields are

26.3 PERSONALITY FILE KEYWORD ORDER

Keywords should appear in the following order:-

```
DEVICE ...
TYPE ...
DEVICEADDRESS ...
DAEND ...
MINDMX ...
MAXDMX ...
DIVBY ...
MIRROR ...
DMX ...
DMX ...
TEXT  ...
END
PFTABLE ...
PFEND
MACRO ...
MEND
```

26.4 THE INSTRUMENT NAME

The **INSTRUMENT NAME** will appear in the following format :-

```
DEVICE   XXXXXXXX
```

Where **DEVICE** is the keyword to tell the desk that an instrument name follows and `"XXXXXXX"` is the name of the instrument, this name can be 11 characters long and no spaces or tabs are allowed.

This instrument name will appear on a soft button when patching and is used in various view screens when operating the desk.

It is usually easier to make the actual file name similar to the **DEVICE NAME** to make things easier when servicing personality files.

26.5 THE DEVICE TYPE

The **DEVICE TYPE** will appear in the following format :-

```
TYPE   1 Y Z
```

Where **TYPE** is the keyword used to tell the desk that **DEVICE TYPE** data follows.

`"1"`, which is the first character on the line is no longer used but is required for backward compatibility. This field may be used in future versions and should always be "1".

Field `"Y"` tells the desk the number of ATTRIBUTES (channels) the device uses, and entry `"Z"` gives information on the way the device is to be patched.

Where:-

M	patches from dmx 512 to 001 (downwards)
D	patches from dmx 001 to 512 (upwards)

K   for those devices where the dmx channels used are not in consecutive slots

For example a **TYPE-LINE** can look like:-

```
TYPE  1 8 M
```

Setting the device to:- 8 channels used patched from 512 downwards and the next line sets a device for 10 channels and patched from 001 to 512

```
TYPE  1 10 D
```

26.6 *Fixture switch settings*

This allows the desk to display the exact switch settings required to configure a fixture for a given DMX address and to ensure it is set in the correct mode.

The display can be configured in virtually any way required.

The fixture switch detail MUST be declared before the DMX declaration.

A number of variables are provided for use within this function, these are:-

d = dmx number the instrument is assigned to
h = handle the instrument will be operated from
n = the device name, given earlier in the personality file

You should note that these variables must be in lower case

The keywords associated with the fixture switch settings are:

DEVICEADDRESS
DAEND
MINDMX
MAXDMX
DIVBY

The screen space allowed for displaying the fixture information is 10 lines by 21 characters.

The start and end of the fixture switch detail is marked by DEVICEADDRESS and DAEND.

The formula to display this information is restricted to 10 lines by 79 characters.

The three other variables must be defined for the instrument are:-

MINDMX = lowest DMX number the instrument can be addressed

MAXDMX = highest DMX address number the instrument

DIVBY = The difference of two dmx addresses selected by changing the LS bit of the address switch.

For example if the instrument address switch increments the DMX number by 1 then the difference DIVBY will be 1, if, like on the Cyberlight it increments by 20 then DIVBY would be 20.

DIVBY is used to ensure that an instrument can be addressed at the address proposed by the user when patching.

There follows an example for a Cyberlight.

;This instrument can only be switched to certain DMX addresses.

```
; variables used d=dmx number, h=handle, n=devicename;
"Address    %04b %1b001"16-(d/20%16),(d/20)/16
; This is the address display line
; 1. Items in quotes are displayed
; 2. First item here (Address    ) is ascii text
; 3. %04b = 4 bits of binary data, 0 means display leading 0's
; 4. next is a space
; 5. %1b = 1 bit of binary data
; 6. 001 is ascii text again
; 7. Close quotes
; 8. first variable passed is 16-((d/20)%16)
;     (d/20)  : dmx/20 giving fixture number
;     %16     : isolates lower 4 bits
;     16-     : reverses the 4 bits
; 9. Second variable passed is  (d/20)/16
;     (d/20)  : dmx/20 giving the fixture number
;     /16     : isolates the upper 4 bits.
;DEVICEADDRESS
"Handle  %2d"h
"Fixture %11s"n
"DMX     %03d"d
""
"Dip Switch  1234 5678"
"Personality 0000 0000"
"Address     %b%b%b%b %b001"d/20%2,d/40%2,d/80%2,d/160%2,d/320%2
""
"0=OFF ( Right )"
"1=ON  ( Left  )"
DAEND
MINDMX=1
MAXDMX=481
DIVBY=20
```

The next example is for a Colour Fader, This instrument uses a GROUP and ADDRESS switch

```
; Upto 10 lines of 79 chars are allowed including formulae
; variables used d=dmx number, h=handle, n=devicename; "Address     %04b %1b001"16-
(d/20%16),(d/20)/16
; This is the address display line
; 1. Items in quotes are displayed
; 2. First item here (Address    ) is ascii text
; 3. %04b = 4 bits of binary data, 0 means dislay leading 0's
; 4. next is a space
; 5. %1b = 1 bit of binary data
; 6. 001 is ascii text again
; 7. Close quotes
; 8. first variable passed is 16-((d/20)%16)
;     (d/20)  : dmx/20 giving fixture number
;     %16     : isolates lower 4 bits
;     16-     : reverses the 4 bits
; 9. Second variable passed is  (d/20)/16
;     (d/20)  : dmx/20 giving the fixture number
;     /16     : isolates the upper 4 bits.
;
DEVICEADDRESS
"Handle  %2d"h
"Fixture %11s"n
"DMX     %03d"d
""
"GROUP   %2d"d/12+1
"CHANNEL %2d"d%12
""
""
""
""
DAEND

MINDMX=1
MAXDMX=508
DIVBY=3
```

26.7 MIRROR

Mirror is used to define the instrument type - Moving head or Moving mirror and the maximum Pan and Tilt angles through which the instrument can move. These values are required for the 3D tracking system. Typically a **MIRROR** line looks like:-

```
MIRROR  1 170 110
```

Where:-

MIRROR is the keyword

> **1** indicates moving mirror a **2** in this field indicates a moving head instrument.
> **170** is the maximum pan movement.
> **110** is the maximum tilt movement.

26.8 THE DMX/PRESET LAYOUT

The **DMX/PRESET LAYOUT** will appear in the following format:-

```
DMX
A B C D E F G H I J K L ; comment
A B C D E F G H I J K L; comment
END
```

Where **DMX** is the keyword to tell the desk dmx, preset and fader information follows.

Field "A"

This sets which Attribute Bank will be connected to the DMX channel, defined later. The range is 1 to 12 for the desk, but up to 15 for the tablet.

A 0 (zero) in this field indicates it is part of a 16 bit channel defined in the previous line.

Field "B"

This tells the desk which fader of the Attribute Bank selects is used for that channel, where 1 means bottom row and 61 top row.

Field "C"

This is the channel type, currently there are 5 different channel types available :-

> H   (HTP) for dimmer
> L   (LTP)   for moving lights and scrollers
> I   (instant)   LTP channel which does not fade
> S   (double byte) 16 bit LTP channel which does not fade
> s   (double byte) 16 bit LTP channel

Field "D"

This is the relative DMX address of the attribute being defined, starting from 1.

Field "E"

This is the maximum output of that attribute in %, where 0 means no output at all and 100% full output.

This allows the channel to be limited in level.

Field "F"

This sets the curve for that channel, DOM version 2.xx and up supports 4 different curves :-

$$1 = \text{linear curve}$$
$$2 = \text{square}$$
$$3 = \text{relay at 50\%(128) on}$$
$$4 = \text{FD square}$$

The curve number is prefixed a single letter which can be:-

$$N = \text{normal}$$
$$C = \text{complemented curve (ie invert the channel)}$$

Field "G"

This is the link to the user tables and identifier for PAN and TILT. This will be explained in the **TABLES** section. This entry can run from A to F and 0 (zero) meaning no table entry.

Field "H"

This must always be 1 (The checksum facility has been removed).

Field "I"

This defines the channel name. This should be in inverted commas and can be up to 11 characters long and it may include spaces. This will be used on screen to identify the channel in later software revisions.

Field "J" , "K" and **"L"** define three default levels that can be output. These are Locate fixture, Highlight and Lowlight.

The range is 0..255 and -1 means no change to the output.

Locate Fixture is used in the moving light menu to turn on a fixture and set channels to a level such that you can see where the instrument is. Generally the settings give 50% pan 50% tilt, white, no gobo, 100% dimmer.

Highlight and Lowlight are used when editing focuses to brighten or otherwise mark one instrument whilst the others are turned into a dim state.

26.9 TEXT FIELD

The text field will be displayed when patching the devices.

This text field can hold any text you like, but generally it displays the Attribute Bank layout of the device being patched.

As the Sapphire and the Pearl desks use the same personalities you have to take account the screen size differences.

The numbers above represent the maximum number of characters displayable on the Pearl and Sapphire screen. To avoid writing two sets of personalities the Pearl has a special way of looking at the text field, it throws away all characters after the 21st on each line.

Writing the bank layout as follows allows the same personality to be used for both desks.

26.10 The PRESET FOCUS table

The whole table system has been redefined and improved.

The new tables can be either default Preset Focuses or can be used as absolute values for use in making up memories.

Default preset focuses are automatically loaded onto the focus buttons when an instrument is patched.

Two key lines are required for tables, the definition line and the data line.

The definition line looks like:-

```
PFTABLE  "table name"  A B..
```
Where A is allows the table to be connected to a tablet attribute button.

> With the instrument when the pen is clicked on the tablet the table list appears on the LCD (or VGA) screen, moving the pen up or down allows selection of a table entry.

The range for this is -1 meaning table is not attached to a tablet button or 1..30 to define which button the table will be attached to.

Where B is the list of dmx channels values which will be defined within the table.
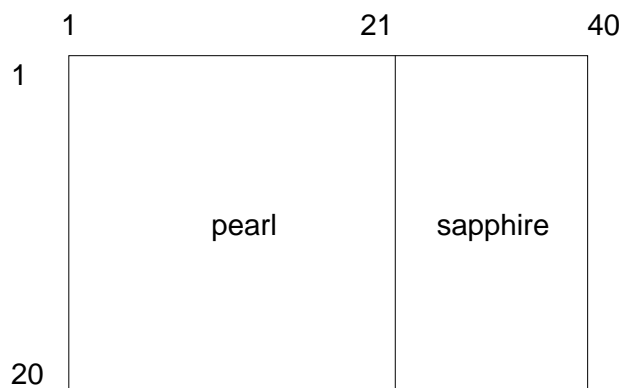
Pearl and Sapphire screen layouts

For example:-

```
PFTABLE "GOBO" 3 4 7
```
The first word is the keyword `PFTABLE` to indicate that a preset focus table follows.

Next follows the table name. This can be up to 11 characters and can include spaces. It must begin and end with double quotes.

The first number indicates which tablet attribute button the table will be available on.

The final numbers are the actual DMX channel numbers.

The next lines contain the actual focus information and is defined as follows:-

```
"focus name"  focus button number  channel level(s)
```

When `"focus name"` this is the name given to the focus. This can be up to 11 characters and can include spaces. It must begin and end with double quotes.

When `focus button number` defines which focus button the entry will be placed on, a -1 (minus one) indicates that the entry is not placed on a button and will be used as an absolute table values, whilst a numbers 1..60 indicates the focus button number.

Where `channel level(s)` are the actual level output to the instrument. This is must be in hexadecimal notation. If no value is required (the entry is OFF) a -1 (minus one) should be placed in the field.

For example:-

```
"STAR GOBO" 20 0 FF ;
```

The first field is the name of the focus, STAR GOBO.

Next is the focus button number that the focus will be placed on. In this case focus button 20.

```
"STAR GOBO" -1 0 FF 0;
```
In this case the entry will not be a preset focus but used as straight data.

Please note that this data can only be accessed from the tablet. Tables are no longer placed on the soft buttons A to F.

Next are the data values.

The last line of the preset focus table must be:-

```
PFEND
```
There can be a number of preset focus tables.

26.11 MACROS

Macros allow a defined set of channels to be adjusted rather like running a chase. The principle use for this is to allow instruments to be struck up or reset which sometimes requires a sequence of channels to be turned on and off over a certain time scale.

Whilst a macro is running all other desk functions are locked out. The macro progression is presented on the prompt line of the screen.

There are three key types of data line associated with macros, these are:

```
MACRO "macro name" channel list
"data" data list
"delay" 1 time
MEND
```

Where `"macro name"` This can be up to 11 characters and can include spaces. It must begin and end with double quotes.

When the channel list is the DMX channels for the instrument, to which data will be passed from the `data list`.

`"data"` that the following data will be passed to the instrument. Note that this MUST be in lower case and enclosed in double quotes.

`data list` is the data to be passed to the instrument. It must be in hexadecimal notation..

`"delay"` This optional statement defines that a delay time before running the next step. When used it must be followed by a 1. This field is for future use.

`Time` is the delay time in units of 0.1 seconds and is in hexadecimal.

3 seconds would be 2E

Macros must terminate with the statement `MEND`

A typical example macro is:-

`MACRO "HOME" 1 18 20 ; send instrument to home position`

```
"data" 0 FF 0
"delay" 1 20
"data" 0 0 FF
"delay" 1 20 ; wait about 2.5 seconds
"data" 0 0 40
"delay" 1 40 ; wait about 5 seconds
"data" 0 0 0
MEND
```

26.12 Example Personality File for the High End Cyberlight

Items in BOLD are required, everything else is comments which can be freely changed deleted etc. comments always precede a ;.

```
; "High End Cyberlight mode 1", 20 DMX channels, filename :hecyber1.per

;

;   Date      By        Description

;   26-05-94  Salzedo   created

;   10-08-94  Anwar     revised dmx slots

;   07-09-94  J.B.Toby  revised for Pearl use/relocation of channels

;   11-11-94  J.B.Toby  revised to match PerManML

;   22-05-96  S. Anwar  Pan/Tilt channel identification & Resolution inserted

;   04-03-96  S. Anwar  Revised for Sapphire 96

;-------------------------------------------------------------------------

; The device name, upto 11 characters, no spaces are allowed

DEVICE  CYBER_mode1

;

;-------------------------------------------------------------------------

; The Type of instrument, 1 & M are required for backward compatibility

; The middle number denotes the number of DMX channels used

TYPE  1  20  M

;

;-------------------------------------------------------------------------

; Mirror/Head resolution

MIRROR      1      170      108

;            |      |        |
```

```
;            |       |      |_____ maximum tilt movement (in degrees)
;            |       |_____ maximum pan movement (in degrees)
;            |_____ 1 means moving mirror, 2 means moving head
;
;-----------------------------------------------------------------------------
; Patching Information. (Upto 10 lines allowed)
; Upto 10 lines of 159 chars are allowed including formulae
; Variables used d=dmx number(1..512), h=handle(1..60), n=devicename (11-char)
; Allowed modifiers
;   +,-,*,/,(,) basic arithmatic
;   % means remainder after divide
;   & means logical AND
;   | means logical OR
;   R means reverse the bits of the curernt result (operates on a byte)
;   ^ means logical Exclusive OR (operates on a byte)
;   > means shift to the right
;   < shift to the left
;   r followed by number means get the value of that parameter
;   d DMX address
;   n Fixture name, a 0 terminated character string
;   h The handle number
DEVICEADDRESS
"Handle  %2d"h
"Fixture %11s"n
"DMX     %03d"d
""
"Dip Switch  1234 5678"
"Personality 0000 0000"
"Address     %b%b%b%b %b001"d/20%2,d/40%2,d/80%2,d/160%2,d/320%2
""
"0=OFF ( Right )"
"1=ON  ( Left  )"
DAEND
;
;-----------------------------------------------------------------------------
; Specify DMX limits
;
; minimum allowed dmx number
MINDMX=1
;
; maximum allowed dmx number
MAXDMX=481
;
```

```
; DMX number must be divisible by this
DIVBY=20
;
;--------------------------------------------------------------------------
; DMX channel description
;
; Column by column description of each DMX channel
; 1. The channels bank number (1..12)
; 2. The upper faders in the bank (1) or the lower faders in the bank (61)
; 3. Channel type (L=LTP, H=HTP, I=Instant LTP, S=16-bit instant LTP,
;    s=16-bit Fadeable LTP
; 4. DMX offset (1..number of DMX channels)
; 5. The output level is proportionally reduced by this level (0..100%)
; 6. The curve number (applicable only to HTP channels), usually set to 1
; 7. Inverted (I) or Normal (N)
; 8. Attribute type (A=Colour Wheel, BCD=Colour Mix, E=Pan, F=Tilt,
;                                   0=uncategorised)
; 9. Checksum channel (Always 1)
;10. Attribute name, must be enclosed in quotes and upto 12 characters allowed
;11. The ON value of this channel (0..255)
;12. The Highlight level of this channel
;13. The Lolight level of this channel
;

DMX

3  61  S   1  100 1N  E  1  "Pan"          128   -1   -1  ; PAN
0   0  L   2  100 1N  E  1  "Pan Low"      128   -1   -1  ; PAN Low
3   1  S   3  100 1N  F  1  "Tilt"         128   -1   -1  ; TILT
0   0  L   4  100 1N  F  1  "Tilt Low"     128   -1   -1  ; TILT Low
4   1  I   5  100 1N  0  1  "Colour Wheel"   0    0    0  ; COLOUR WHEEL
10  1  L   6  100 1N  B  1  "Cyan"         255  255  255  ; CYAN
10 61  L   7  100 1N  D  1  "Magenta"      255  255    0  ; MAGENTA
9  61  L   8  100 1N  C  1  "Yellow"       255  255    0  ; YELLOW
6   1  I   9  100 1N  0  1  "Gobo 1"         0    0    0  ; GOBO 1
6  61  I  10  100 1N  0  1  "Gobo 2"         0    0    0  ; GOBO 2
8  61  I  11  100 1N  0  1  "Gobo Speed"     0    0    0  ; GOBO SPEED
5   1  L  12  100 1N  0  1  "Zoom"           0    0    0  ; ZOOM
5  61  L  13  100 1N  0  1  "Focus"          0   -1   -1  ; FOCUS
2   1  I  14  100 1N  0  1  "Iris "        255  255  255  ; IRIS
9   1  I  15  100 1N  0  1  "Effects"        0    0    0  ; EFFECT WHEEL
7  61  I  16  100 1N  0  1  "Frost"          0    0    0  ; FROST
2  61  L  17  100 1N  0  1  "Shutter"      255  255  255  ; SHUTTER
1   1  H  18  100 1N  0  1  "Dimmer"       255  255  255  ; DIMMER
8   1  L  19  100 1N  0  1  "Motor Speed"  255  255  255  ; MOTOR SPEED
```

```
11  1   I   20  100 1N  0   1    "Control"        0    0    0  ; Control
END
;
;----------------------------------------------------------------------------
; Text to be displayed when the Instrument is selected for Patching
;
TEXT
  Cyberlight Mode 1
Bank    Faders
   Bottom   Top
--------------------
 1 Dimmer    --
 2 Iris      Shutter
 3 Tilt      Pan
 4 Colour 1  --
 5 Focus     Zoom
 6 Gobo 1    Gobo 2
 7 Frost     --
 8 M-speed   Gobo spd
 9 Effect    Yellow
10 Cyan      Magenta
11 Control   --


INPUT and/or note DMX
number.
Press a channel grab
to make patch
END
;
;----------------------------------------------------------------------------
; Tables


; A colour table colour wheel, cyan, magenta, yellow
PFTABLE "Colour" -1  5   6   7   8
"Col 1"          1  0  ff ff ff
"Col 2"          2  0  ff  0  0
"Col 3"          3  0   0 ff  0
"Col 4"          4  0   0  0 ff
"Col 5"          5  0  ff ff  0
"Col 6"          6  0   0 ff ff
"Col 7"          7  0  ff  0 ff
"Col 8"          8  0  97 32 c8
"Col 9"          9  0  3d a3 bd
```

```
"Col 10"          10   0  eb 5a 17

PFEND




; Gobo

PFTABLE "Gobos" -1  9 10 11

"Gobo 1.1"          11  2  0  0

"Gobo 1.2"          12 af  0  0

"Gobo 1.3"          13 b9  0  0

"Gobo 1.4"          14 c3  0  0

"Gobo 1.5"          15 cc  0  0

"Gobo 1.6"          16 d7  0  0

"Gobo 1.7"          17 e1  0  0

"Gobo 2.1"          18  0 2d  0

"Gobo 2.2"          19  0 4b  0

"Gobo 2.3"          20  0 5f  0

PFEND




; Positions

PFTABLE "Positions" -1 1 3

"Middle"    21 80  80

"Left"      22 50  80

"Right"     23 b0  80

"Top"       24 80  50

"Bottom"    25 80  b0

"TLeft"     26 50  50

"TRight"    27 b0  b0

"BLeft"     28 50  b0

"BRight"    29 b0  50

PFEND



MACRO "HOME" 1  18  20

"data"        0  ff  ff

"delay"       1  20

"data"        0   0  ff

"delay"       1  20

"data"        0   0  40

"delay"       1  40

"data"        0   0   0

MEND
```

```
MACRO "SHUTDOWN" 2  18  20

"data"             0  ff  ff

"delay"            1  20

"data"             0   0  ff

"delay"            1  20

"data"             0   0  80

"delay"            1  40

"data"             0   0   0

MEND
```

27. Credits and Acknowledgements

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Now as you may recall, all that Software brings the Hardware to life, pumping out DMX to realise your creative ideas. It has been carefully tested and examined in minute detail by **Dan Hardiman**, **Ewan McRobb**, **Chris Crockford**, **Liz Berry, Lydia James** (who proof read this manual) and many of the Avolites distributors and users.

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